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ABSTRACT

A project was conducted to demonstrate the effectiveness of competency-based, individualized instruction as a teaching technique in vocational welding programs for students with varying backgrounds, abilities, and special needs. Five Missouri area vocational schools participated in the project by field testing and evaluating welding instructional modules developed by the state media center and teacher inservice presentations developed during this project. Two slide-tape presentations were produced, one to explain competency-based instruction and one to provide implementation procedures for teaching in a competency-based system. Three video-tape programs were developed to show techniques for teaching learning disabled, educationally disadvantaged, and physically handicapped students in welding. Major project findings included (1) the teacher inservice presentations developed were found to be acceptable and ready for dissemination and (2) positive results were obtained from the competency-based, individualized instructional method utilizing the welding modules. (Appendixes, amounting to over three-fourths of the report, include scripts to the media presentations, summary of student evaluations of the learning modules, forms used in the project, and advisory committee agendas and notes.) (Author/YLB)

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A B S T R A C T

This project was conducted to demonstrate the effectiveness of competency-based, individualized instruction as a teaching technique in vocational welding programs for students with varying backgrounds, abilities, and special needs.

Five Missouri area vocational schools participated in the project by field testing and evaluating welding instructional modules developed by the Media Center and teacher in-service presentations developed during this project.

Two slide-tape presentations were produced, one to explain competency-based instruction and one to provide implementation procedures for teaching in a competency-based system. Three videotape programs were developed to show techniques for teaching learning disabled, educationally disadvantaged, and physically handicapped students in welding. These materials will be accompanied by an Instructor Guide and a Placement Handbook.

Major project findings included:

1. The teacher in-service presentations developed were found to be acceptable and ready for dissemination through the Media Center.
2. Positive results were obtained from the competency-based, individualized instructional method utilizing welding modules developed by the Media Center.

The products of this project should be valuable to Missouri educators considering or currently utilizing competency-based instruction in welding or other vocational programs. The techniques presented in the videotape programs and in the Instructor Guide should be helpful to instructors teaching special needs students.

FINAL REPORT

I. INTRODUCTION

It has been established by previous research and experience that students, as individuals, vary in their learning rate, previous knowledge and experience, their capacity to learn and their interests and motivation to learn. To provide for these individual differences, instructional techniques must be modified, yet students in vocational education programs must be given the skills or competencies required for successful employment.

The individualized method of instruction is gaining acceptance throughout the country. However, systems for delivering individualized instruction to students have not been systematically established in area schools. Components to insure mastery learning of the material presented and the instructional materials necessary to present the content have been absent or inadequate.

II. STATEMENT OF THE PROBLEM

This project was conducted to demonstrate the ability of competency-based, individualized instruction as a teaching technique for vocational welding students with varying backgrounds, abilities, and special needs. At the same time, mediated instructional materials were field tested.

III. OBJECTIVES

Five objectives were outlined in the project proposal and the findings and conclusions related to each objective are outlined in this section.

A. To select or develop a slide program on the advantages and characteristics of competency-based vocational instruction for school districts, administrators, and instructors.

1. Findings. A slide-tape presentation outlining the advantages and characteristics of competency-based vocational instruction, especially in the welding program, was written by Dr. Milton Miller and Mr. Robert Schwindt and produced by Media Center staff. A copy of the script is provided in Appendix B.

This slide-tape program was presented to the project advisory committee and was evaluated by that group in September 1979.

2. Conclusions. The slide-tape presentation titled, "Competency-Based Instruction--Is It For You," was rated acceptable for teacher in-service by the project advisory committee and by the consultant, Dr. Milton Miller.

This presentation will be disseminated through the Media Center on a cost-recovery basis. A copy of the presentation is provided as an attachment to this report.

B. To select or develop a slide program on the procedures in implementing competency-based education for vocational-technical administrators and instructors.

1. Findings. A slide-tape presentation was written by Mr. Robert Schwindt and produced by Mr. Rick List of the Media Center, titled "Competency-Based Education: Procedures for Implementing a Program." A script of the presentation is provided in Appendix B.

2. Conclusions. The presentation was reviewed prior to production by Dr. Milton Miller, project consultant, and was evaluated by the project advisory committee in June. The program was evaluated as acceptable for teacher in-service training with minor revisions. Improvements suggested by committee members were made and the revised presentation will be available through the Media Center on a cost-recovery basis. A copy of the presentation is provided as an attachment to this report.

C. To develop and test a teaching guide and related competency-based welding curriculum for use with students with special needs and varying abilities. This guide will include a course outline, references, supplemental learning activities, and special instructional techniques.

1. Findings. Competency-based, mediated instructional materials developed by State Fair Community College staff and the Media Center were implemented in the five project schools. State Fair Area Vocational School and Community College, Lex-La-Ray Area Vocational School, Lead Belt Area Vocational School, Moberly Area Vocational School, Sikeston Area Vocational School, and Cape Girardeau Area Vocational School. Each of these institutions mainstream special needs students in their welding programs. Strengths and weaknesses reported by the instructors at advisory committee meetings and on written evaluations of each module included:

a. Strengths. All of the instructors felt that the instructional materials were valuable for providing individualized instruction to special needs students. Many of these students have reading and math skills deficiencies and the individualized, audio-visual presentation allowed them to learn despite their disadvantaged or handicapped condition.

The presentations could be viewed more than one time when necessary and students who did not learn at the specified level could be recycled through the presentation while other students moved ahead. There was little stigma attached to repeating a phase of instruction when each student was allowed to move at his or her best rate of speed. Instructors were able to spend more time helping individual students when the basic information was available on the slide-tape presentations. The slide-tape presentations were the same for each student which is seldom possible in group instruction.

Student comments were generally positive when they compared gleaning information from the slide-tape to textbook presentation. The comments "didn't have to read much" and "easy to understand" were found on many student evaluation forms. A summary of the student evaluations is provided in Appendix C.

The counselors praised the positive feedback from the unit by unit mastery of material as an important success factor for special needs students.

b. Weaknesses. Instructors and students felt that some of the modules were too long. Instructors recommended splitting modules in half for special needs students so that only two to three competencies would be covered per presentation.

Instructors made suggestions for improving the technical information in the slide-tape programs. These suggestions will be considered when revision of the materials is undertaken.

The forms used to evaluate the instructional modules and record student progress are provided in Appendix D.

2. Conclusions. The instructional modules field tested are acceptable for individualized instruction of special needs welding students but would be more acceptable if approximately half the content included were separated into a second module.

The Instructor Guide to accompany the instructional materials will be disseminated through the Media Center on a cost-recovery basis. A copy is an attachment to this report.

D. To develop a handbook for use by welding instructors and counselors in placing students in the proper welding sequence.

1. Findings. Content of the handbook was discussed at the advisory committee meeting in January and a draft of the handbook was presented at the June advisory committee meeting for review by the committee members.

2. Conclusions. The improvements suggested by advisory committee members were made and the handbook will be disseminated through the Media Center on a cost-recovery basis. A copy is an attachment to this report.

E. To develop three videotapes demonstrating to other vocational educators techniques for teaching students with special needs and varying abilities.

1. Findings. The advisory committee determined the topics for the videotapes should be:

Alternate Ways of Teaching Learning Disabled Students in the Welding Program

Teaching the Educationally Disadvantaged Student in the Welding Program

Teaching the Physically Handicapped in the Welding Program

The scripts were written by Elnora Komar, Moberly Area Vocational School; David Adams, Lex-La-Ray Area Vocational School; and Gerald Evans and Gay Groves, State Fair Community College. The videotapes were produced by Media Center staff with Gary Tipton serving as the producer on all three programs. The videotaping was completed on location in each school.

The presentations were shown to the advisory committee members in June and evaluated as effective for in-service training of instructors in techniques for teaching special needs students.

2. Conclusions. The videotapes will be disseminated through the Media Center on a cost-recovery basis. Copies of each videotape are provided as an attachment to this report.

IV. POPULATION AND SAMPLE

Five secondary area vocational schools in which special needs students were mainstreamed in welding programs participated in the project.

The participating schools included:

State Fair Area Vocational Technical School
Moberly Area Vocational School
Lead Belt Area Vocational School
Lex-La-Ray Area Vocational School
Sikeston Area Vocational School
Cape Girardeau Area Vocational School

All of the students enrolled in welding in these institutions participated in the field testing of instructional materials and the individualized method of instruction. The welding instructors in these schools evaluated the modules, wrote techniques for teaching special needs students, and maintained student program and completion records. Counselors in each of these schools served as advisory committee members.

Scripts were written by:

Elnora Komar, Moberly Area Vocational School
David Adams, Lex-La-Ray Area Vocational School
Gerald Evans, State Fair Area Vocational School
Gay Groves, State Fair Area Vocational School
Bob Schwindt, Farmland Industries

A list of advisory committee members and meeting agendas are provided in Appendix E.

V. CONCLUSIONS AND RECOMMENDATIONS

Conclusions drawn from this project include:

A. The five presentations of techniques for teaching special needs students developed as a part of this project are acceptable as in-service training tools for welding instructors.

B. The instructional modules developed by Media Center staff and field tested with special needs students in this project are useful for teaching special needs students in welding.

C. The Media presentations, Handbook, and Instructor Guide will be disseminated on a cost-recovery basis through the Media Center at State Fair Community College.

D. The instructors in 4 of the 5 participating schools plan to continue use of the instructional materials field tested during this project. One instructor discontinued employment and the intentions of the new instructor are not known although the Director supports their use.

The following recommendations are made, based on project findings and conclusions:

A. The welding modules would be more effective with special needs students if they were shortened by 50 percent of the content.

B. The Department of Elementary and Secondary Education is encouraged to publicize the availability of the presentations developed during this project and encourage schools to utilize them.

C. The Media Center is encouraged to list the materials in their catalog and publicize the availability of them on a cost-recovery sales basis.

D. Media Center staff should provide technical assistance to the 5 schools participating in the project during 1980-81 as a part of the State Media Curriculum project.

VI. DISCLAIMER

The activity which is the subject of this report was supported by funds from the Department of Elementary and Secondary Education, Division of Career and Adult Education.

However, the opinions expressed herein do not necessarily reflect the position or policies of the Missouri Department of Elementary and Secondary Education or the Division of Career and Adult Education and no official endorsement should be inferred.

VII. APPENDIX

A. Procedures

A slide program on the advantages and characteristics of competency-based education was developed during the first phase of this project.

A consultant from the Department of Practical Arts and Vocational-Technical Education at the University of Missouri, Dr. Milton Miller, reviewed the slide script.

The slides were then developed through the production and photography of illustrations and title slides, the studio and on-location photography for live shots, and the recording and sound-mixing of the narration.

The slide program was shown to the members of the project advisory committee, and to the superintendent of the

schools sending students to SFCC area vocational school This program was revised following suggestions of these groups. This program is available throught the SFCC Media Center distribution system.

A second slide program explaining procedures to be followed in implementing a competency-based vocational program was developed during the second phase of this project. A State Fair Community College staff member, Mr. Bob Schwindt, who had script-writing experience and knowledge of competency-based instruction worked with the project media specialist in the development of this program.

A consultant from the Department of Practical Arts and Vocational Technical Education at the University of Missouri, Dr. Milton Miller, reviewed this slide program.

The slide program was shown to the project advisory committee in June. A description of this slide program will be included in the Media Center catalog mailed to the area school directors.

The directors of the Lead Belt, Lex-La-Ray, Moberly, Sikeston, and Cape Girardeau area vocational-technical schools were contacted for final approval of parcicipation in this project. Participating schools mainstreaming special-need students in their regular welding program.

An advisory committee was established, consisting of the counselors and welding instructors of the five area vocational-technical schools participating in this project and a minimum of three welding industry representatives.

During the August advisory meeting, they reviewed and updated the competency lists compiled by State Fair Community College in 1976 and 1977. Terminal competencies were identified for the welding program and modules selected to teach these competencies. A course outline and module sequence and an instrument for recording students' progress were developed. Available curriculum materials were reviewed and twenty competency-based instructional modules selected for use by the project schools.

These modules were duplicated for use in the five welding programs. The project staff assisted the instructors in setting up their competency-based welding programs during the fall semester through periodic vists to the schools.

Data on the amount of time required, students' progress, and problems encountered with the modules and competency-based approach to instruction were collected during Phase II of this project. Particular attention was paid to learning activities and special instructional techniques

which improved special-need students' mastery of the welding competencies. Attention was also given to the progress of students with special needs and varying abilities in the competency-based approach.

During Phase III of this project, the advisory committee reviewed the field test information. Pre-entry testing procedures useful in predicting the success of individuals in a welding program were reviewed. Entry competencies for the various skill-level jobs in the welding industry were compiled, as well as a written and performance pre/post test to measure students' welding knowledge and skills at the beginning and end of an instructional program.

The welding instructors from the project schools identified or developed for each module, additional instructional techniques and supplemental learning activities that enable students with special needs and varying abilities to obtain the module competencies. These materials were developed by the instructors under a contract with State Fair Community College. They were combined into a teaching guide for the competency-based welding program. Also included in this teaching guide are the course outline, student progress record form, and a listing of welding references and instructional materials.

The project staff coordinated the development of a handbook for counselors and instructors to use in placing

students in the proper welding curriculum sequences. This included the pretest to measure welding knowledge and skill upon entry into the program, a pre-entry test to determine their abilities and interests related to success and placement in a welding program, and a summary of jobs according to entry skill level in the welding industry. The handbook was reviewed by the advisory committee, final revisions made, duplicated and provided to the cooperating area vocational schools. They will also be described in the Media Center catalog and made available to other schools through the Media Center.

Three videotapes were developed during Phase III showing techniques for teaching students with special needs and varying abilities. The specific topics were identified by the advisory committee. The scripts were developed by instructors, counselors, or curriculum specialist under contract with State Fair Community College. The project media specialist assisted the script writers and perform the production activities such as video recording and editing.

The videotapes were shown to the project advisory committee and the personnel of the project schools at the June meeting. They were also displayed at the Missouri Vocational Association meeting in July 1980.

A description of the videotapes will be included in the Media Center catalog and made available through the Media Center distribution system to other schools on a cost-recovery basis.

B. Scripts to Media Presentations

C. Summary of Student Evaluations

D. Forms Used in Project

E. Advisory Committee Members and Agendas

APPENDIX B

SCRIPTS TO MEDIA PRESENTATIONS

COMPETENCY BASED INSTRUCTION--
IS IT FOR YOU?

W-80-500 - COMPETENCY BASED INSTRUCTION--IS IT FOR YOU? - SCRIPT

1. (JONES) MR. BILL BROWN?
   (BROWN) YES.

2. (JONES) I'M JOHN JONES, PERSONNEL MANAGER FOR ABC MANUFACTURING. I UNDERSTAND THAT YOU ARE INTERESTED IN A WELDING JOB.

   (BROWN) YES, I TOOK A WELDING COURSE IN HIGH SCHOOL AND REALLY ENJOYED IT.

3. (JONES) GOOD, THEN YOU FEEL THAT YOU ARE A QUALIFIED WELDER.

   (BROWN) SURE! WHY WE SPENT FOUR WEEKS ON OXYACETYLENE WELDING AND SIX WEEKS ON ARC WELDING. WE ALSO STUDIED MIG AND TIG WELDING. I EVEN GOT A "C" IN THE COURSE.

4. (NARRATOR) HOW WELL WILL BILL DO IN HIS WELDING JOB? WILL HIS COURSE WITH A PASSING GRADE QUALIFY HIM FOR EMPLOYMENT,

5. OR WILL HE HAVE PROBLEMS? (MUSIC UP)

6. COMPETENCY BASED INSTRUCTION IS ONE METHOD FOR ADDING CREDIBILITY TO YOUR PROGRAMS AND PROVIDING YOUR STUDENTS WITH THOSE SKILLS KNOWN TO BE REQUIRED FOR EMPLOYMENT.

7. DURING THIS PROGRAM WE WILL EXPLAIN THE ESSENTIAL ELEMENTS AND IMPLIED CHARACTERISTICS OF A COMPETENCY-BASED INSTRUCTIONAL PROGRAM, MAKE A COMPARISON BETWEEN A TYPICAL TRADITIONAL AND A TYPICAL COMPETENCY-BASED INSTRUCTIONAL PROGRAM,

8. EXPLAIN THE ADVANTAGES OF A COMPETENCY-BASED INSTRUCTION FROM BOTH THE STUDENTS' AND TEACHER'S POINT OF VIEW, DISCUSS THE COMMON MISCONCEPTIONS OF COMPETENCY-BASED INSTRUCTION,

9. AND IDENTIFY THE PROFESSIONAL CHALLENGES FOR TEACHERS AND ADMINISTRATORS IN IMPLEMENTING A COMPETENCY-BASED VOCATIONAL PROGRAM.

10. TRADITIONALLY INSTRUCTIONAL PROGRAMS HAVE BEEN BASED ON STUDENTS COMPLETING A COURSE IN A GIVEN AMOUNT OF TIME SUCH AS A SEMESTER OR A YEAR.

11. COMPETENCY OR PERFORMANCE BASED PROGRAMS ARE BASED ON A STUDENT ATTAINING A GIVEN LEVEL OF COMPETENCY IN DEVELOPING THOSE ATTITUDES, KNOWLEDGE AND SKILLS DEEMED CRITICAL FOR SUCCESSFUL EMPLOYMENT.

12. THERE ARE FIVE ESSENTIAL ELEMENTS IN A COMPETENCY-BASED INSTRUCTIONAL PROGRAM. FIRST, THE COMPETENCIES AND COURSE OBJECTIVES TO BE DEMONSTRATED BY THE STUDENTS ARE STATED OR MADE PUBLIC IN ADVANCE. THEY ARE SUPPORTED BY RESEARCH OR TEACHER EXPERIENCE AND STATED SO AS TO MAKE IT POSSIBLE TO ASSESS STUDENTS' BEHAVIOR IN RELATION TO SPECIFIC COMPETENCIES.

13. THESE COMPETENCIES ARE IDENTIFIED THROUGH TASK ANALYSES OF ACTUAL JOBS STUDENTS WILL BE EMPLOYED IN.

14. SECOND, THE CRITERIA TO BE EMPLOYED ASSESSING COMPETENCIES ARE BASED UPON SPECIFIED COMPETENCIES AND EXPLICITLY STATE THE EXPECTED LEVEL OF STUDENT PERFORMANCE UNDER DESCRIBED CONDITIONS. THE CRITERIA IS MADE PUBLIC IN ADVANCE SO STUDENTS KNOW WHAT LEVEL OF PERFORMANCE IS EXPECTED FROM THEM. AGAIN, THIS MINIMUM CRITERIA LEVEL IS RELATED TO ENTRY LEVEL SKILLS NEEDED FOR SUCCESSFUL EMPLOYMENT.

15. THIRD, THE INSTRUCTIONAL PROGRAM IS DESIGNED TO PROVIDE THE STUDENT THE OPPORTUNITY TO DEVELOP EACH OF THE COMPETENCIES SPECIFIED.

16. FOURTH, ASSESSMENT OR MEASUREMENT OF THE STUDENTS' COMPETENCY USES THEIR PERFORMANCE AS THE PRIMARY SOURCE OF EVIDENCE OF THEIR LEVEL OF PERFORMANCE. ONLY THAT KNOWLEDGE REQUIRED BY THE STUDENT TO MEET THE COMPETENCY WILL BE TESTED. EVALUATION ALSO TENDS TO BE MORE OBJECTIVE SINCE IT IS BASED ON STATED COMPETENCIES.

17. FINALLY, THE STUDENT'S RATE OF PROGRESS THROUGH A COMPETENCY-BASED PROGRAM IS DETERMINED BY HOW FAST THAT STUDENT CAN MASTER EACH STATED COMPETENCY RATHER THAN BY TIME OR COURSE COMPLETION.

18. THERE ARE ALSO SEVERAL ADDITIONAL DESIRABLE ELEMENTS WHICH ARE RELATED TO THE PREVIOUS FIVE ESSENTIAL ELEMENTS. INSTRUCTION WILL TEND TO BE VERY INDIVIDUALIZED AND PERSONALIZED AS STUDENTS ENTER WITH WIDELY DIFFERENT BACKGROUNDS AND PURPOSES, DIFFERENT STRATEGIES MAY BE REQUIRED TO HELP THE STUDENT REACH MINIMUM COMPETENCY LEVELS.

19. THE LEARNING EXPERIENCE OF EACH STUDENT IS GUIDED BY FEEDBACK. THE STUDENT IS FREQUENTLY TOLD HOW WELL THEY ARE DOING WITH PROCEDURES FOR MODIFYING THE PROGRAM TO MEET THE NEEDS OF THE LEARNER.

20. THE PROGRAM IS SYSTEMATIC WITH ALL OF THE RELATED FACTORS SUCH AS CLASSROOM INSTRUCTION, DEMONSTRATIONS, LABWORK AND ASSESSMENTS WORKING TOGETHER TO PRODUCE A SPECIFIED PRODUCT--A QUALIFIED EMPLOYEE.

21. EMPHASIS IS PLACED ON EXIT NOT ENTRANCE REQUIREMENTS. THE PROGRAM BEGINS WITH STUDENT PREREQUISITE INFORMATION OR WHERE THEY ARE NOW AND THEN BUILD THE NEEDED COMPETENCIES.

22. INSTRUCTION IS MODULARIZED. THAT IS, THE LEARNING ACTIVITIES, INSTRUCTIONAL ACTIVITIES, AND TESTS DESIGNED TO FACILITATE THE STUDENT'S ACQUISITION OF A PARTICULAR TASK OR COMPETENCY ARE ORGANIZED OR GROUPED TOGETHER. THIS INCREASES THE POSSIBILITIES FOR SELF-PACING, INDIVIDUALIZATION, PERSONALIZATION AND ALTERNATIVE MEANS OF INSTRUCTION.

23. FINALLY, THE STUDENT IS HELD ACCOUNTABLE FOR THEIR PERFORMANCE. THAT IS, THEY MUST DEMONSTRATE A GIVEN LEVEL OF COMPETENCY RATHER THAN COMPLETING A GIVEN AMOUNT OF TIME IN A PROGRAM.

24. COMPETENCY-BASED INSTRUCTION DOES NOT DIFFER FROM OTHER MODES OF EDUCATION IN ITS GOALS, BUT RATHER IN ITS UNDERLYING ASSUMPTIONS AND THE APPROACHES WHICH CHARACTERIZE IT. TRADITIONALLY, MANY TEACHERS HAVE BEEN USING THE NORMAL CURVE FOR GRADING STUDENTS SO LONG THAT THEY MAY EXPECT A CERTAIN NUMBER OF STUDENTS TO DO VERY GOOD WORK, ANOTHER GROUP TO DO ADEQUATE WORK, AND THE REST TO JUST GET BY OR FAIL.

25. BLOOM BELIEVES THAT MOST STUDENTS PERHAPS, OVER NINETY PERCENT, CAN MASTER WHAT WE HAVE TO TEACH THEM.

26. IT IS THE TASK OF INSTRUCTION THEN TO FIND THE MEANS WHICH WILL ENABLE OUR STUDENTS TO REACH THAT MINIMUM LEVEL OF COMPETENCY REQUIRED FOR EMPLOYMENT.

27. THERE ARE SEVERAL ADVANTAGES OF A COMPETENCY-BASED INSTRUCTIONAL PROGRAM FROM THE STUDENT'S POINT OF VIEW.

28. THE STUDENTS' RATE OF PROGRESS IN THE PROGRAM IS DETERMINED BY THEIR INDIVIDUAL ABILITIES. THUS, UNNECESSARY PRESSURE MAY BE REDUCED. THIS DOES NOT MEAN THAT THE STUDENT SHOULD BE ALLOWED TO WASTE TIME OR LAG BEHIND. IGNORANCE IS NOT ALLOWED TO COMPOUND AS IN A FIXED PROGRAM WHERE THE STUDENT MUST CONTINUE EVEN THOUGH THE MATERIAL JUST COVERED IS UNCLEAR. STUDENTS ARE ALLOWED TO MASTER A LESSON BEFORE GOING ON TO THE NEXT. THEY ARE ABLE TO REVIEW INFORMATION, RETAKE TESTS, AND REDO PRODUCTION WORK.

29. THIS APPROACH ALLOWS FOR AN OPEN-ENTRY/OPEN-EXIT POLICY WHEN WORKING WITH OLDER ADULTS WHO MAY ENTER FROM THE WORK FORCE FOR SPECIFIC TRAINING AND EXIT WHEN THEY GAIN THOSE COMPETENCIES REQUIRED BY A SPECIFIC JOB.

30. THROUGH PRE-TESTING PRACTICES, THE STUDENT CAN BE GIVEN CREDIT FOR THOSE COMPETENCIES ALREADY MASTERED SO THEY DO NOT HAVE TO REPEAT OR SIT THROUGH THIS MATERIAL AS IN MANY TRADITIONAL PROGRAMS.

31. THE PROGRAM IS PERSONALIZED ALLOWING THE STUDENT AND INSTRUCTOR TO WORK MORE CLOSELY TOGETHER.

32. SINCE INSTRUCTION IS MODULARIZED, IT IS EASIER TO ARRANGE ACTIVITIES THAT ALLOW THE STUDENT TO SPEND ADDITIONAL TIME AND PRACTICE ON THOSE AREAS AND COMPETENCIES THAT MEET THEIR NEEDS AND INTERESTS.

33. THE STUDENT GETS TO SHARE IN THE RESPONSIBILITY FOR LEARNING. THEY HAVE SOME SAY IN DECIDING WHAT THEY WILL LEARN AND HOW TO LEARN IT. THIS ALSO MOTIVATES THE STUDENT. THE STUDENT CAN HELP DECIDE HOW THEY ARE GOING TO REACH THE STATED COMPETENCIES.

34. COMMUNICATIONS ARE MORE CLEAR. THE STUDENTS KNOW WHAT IS EXPECTED OF THEM. THEY CAN TALK MORE SPECIFICALLY ABOUT WHAT THEY HAVE LEARNED OR ARE LEARNING WITH PARENTS, EMPLOYERS, AND OTHER INSTITUTIONS THEY MAY ENTER.

35. STUDENTS ARE ALSO MORE AWARE OF WHAT THE COURSE INVOLVES AS THEY ENTER SINCE THE EXPECTATIONS ARE CLEARLY LAID OUT.

36. THERE ARE ALSO SEVERAL ADVANTAGES FOR THE INSTRUCTOR WITH A COMPETENCY-BASED PROGRAM. MORE TIME CAN BE SPENT WITH EACH STUDENT AS LESS TIME IS SPENT IN LARGE GROUP LECTURES AND DEMONSTRATIONS.

37. THE INSTRUCTOR'S PROGRAM IS MORE FLEXIBLE. IT IS EASIER TO ACCOMMODATE THOSE STUDENTS WITH SPECIAL NEEDS OR ABILITIES, AS WELL AS TO SET UP SPECIAL TRAINING PROGRAMS FOR PERSONS SEEKING SPECIFIC SKILL TRAINING.

38. STUDENT MOTIVATION IS INCREASED SINCE THE TEACHER MAY CONCENTRATE THEIR ENERGIES ON INVOLVING STUDENTS AND PROVIDING APPROPRIATE LEARNING EXERCISES.

39. GRADING IS MADE MORE OBJECTIVE SINCE THE STUDENT CLEARLY KNOWS WHAT IS EXPECTED FROM THEM. STUDENTS CAN MORE EASILY BE GIVEN CREDIT FOR WHAT THEY HAVE ACCOMPLISHED. MORE RESPONSIBILITY FOR THEIR GRADE IS PLACED ON THE STUDENT.

40. SINCE THE COURSE CONTENT AND OBJECTIVES ARE WELL DEFINED, THIS INFORMATION CAN EASILY BE COMMUNICATED TO THE PUBLIC, PARENTS, AND PROSPECTIVE STUDENTS.

41. THE IMAGE AND CREDIBILITY OF THE PROGRAM IS ENHANCED IN THE PUBLIC'S EYE. EMPLOYERS NOT ONLY ARE MORE AWARE OF THE CAPABILITIES OF THE STUDENT, BUT ALSO HELP DETERMINE WHAT COMPETENCIES ARE TO BE TAUGHT.

42. THE INSTRUCTOR KNOWS THAT STUDENTS WHO MASTER THE COMPETENCIES WILL BE TECHNICALLY QUALIFIED FOR EMPLOYMENT. THE RESPONSIBILITIES FOR STUDENT PERFORMANCE UPON EMPLOYMENT THEN DOES NOT REST SOLELY UPON THE INSTRUCTOR.

43. WITH THE BASIC INSTRUCTIONAL PROCESS CAREFULLY DEFINED, THE TEACHER IS MORE ABLE TO DESIGN ACTIVITIES THAT WILL REFLECT THEIR OWN UNIQUE TEACHING ABILITIES.

44. FINALLY, ARTICULATION BETWEEN PROGRAMS IS AIDED. STUDENTS CAN GO FROM ONE LEVEL OF EDUCATION SUCH AS FROM AN AREA SCHOOL TO A COMMUNITY COLLEGE WITH A RECORD OF THEIR COMPETENCIES. THEREFORE, THEY CAN LEARN ON A CONTINUOUS PATH FROM ONE LEVEL TO THE NEXT.

45. THERE ARE ALSO SEVERAL ADVANTAGES TO THE INSTITUTION. MORE EFFICIENT AND INTENSE USE CAN BE MADE OF CLASSROOM AND LABORATORY FACILITIES SINCE STUDENTS MAY BE WORKING WITH DIFFERENT MODULES REQUIRING DIFFERENT EQUIPMENT.

46. THE INSTITUTION CAN SERVE MORE STUDENTS SINCE MINI-COURSES OR SPECIAL CLASSES CAN BE SET UP FOR GROUPS OF STUDENTS WITH SPECIAL NEEDS FOR INDUSTRY TRAINING OR OTHER SETTINGS.

47. THE PROGRAM WILL BE CONSISTENT FROM SECTION TO SECTION AND INSTRUCTOR TO INSTRUCTOR SINCE THE PROGRAM GOAL AND COMPETENCIES ARE IDENTIFIED FOR INSTRUCTOR USE.

48. PRESENTLY, THERE ARE A NUMBER OF COMMON MISCONCEPTIONS ABOUT COMPETENCY-BASED INSTRUCTION.

49. THE FIRST MISCONCEPTION STATES THAT SINCE COMPETENCY-BASED INSTRUCTION IS OFTEN INDIVIDUALIZED, IT ISOLATES EACH STUDENT IN THE INSTRUCTIONAL P)CESS.

50. ACTUALLY, RATHER THAN CAUSING ISOLATION, CBI WITH ITS ONE TO ONE SITUATION AND SMALL GROUP SETTING PRESENTS MORE OPPORTUNITIES TO INTERACT WITH THE INSTRUCTOR AND OTHER STUDENTS.

51. CBI IS ALSO SAID TO BE DEHUMANIZING. HOWEVER, WHEN STUDENTS ARE TAUGHT AS A GROUP, THEIR INDIVIDUAL NEEDS CANNOT BE MET. SLOWER STUDENTS MAY BE MADE TO FEEL INADEQUATE WHILE THE MORE ABLE STUDENTS ARE HELD BACK FROM ACHIEVING THEIR FULL POTENTIAL! CBI HELPS TO AVOID FEELINGS OF FAILURE AND FRUSTRATION.

52. CBI IS SAID TO FORCE ALL STUDENTS INTO THE SAME MOLD. IT'S TRUE THAT ALL STUDENTS ARE REQUIRED TO ACHIEVE THE SAME MINIMUM COMPETENCIES REQUIRED FOR SUCCESS ON THE JOB.

53. BEYOND THESE BASIC SKILLS, HOWEVER, STUDENTS MAY CHOOSE TO SPECIALIZE, DEVELOP PARTICULAR JOB SKILLS, OR STUDY SOME TOPICS IN GREATER DEPTH.

54. CBI IS ALSO CRITICIZED FOR LOWERING STANDARDS BECAUSE IT ALLOWS TOO MANY PEOPLE TO GET A'S. IT IS TRUE THAT GRADES TEND TO BE HIGH WITH CBI. THIS IS BECAUSE STUDENTS KNOW WHERE THEY ARE GOING, SO THEIR INTERESTS AND MOTIVATIONS ARE INCREASED.

55. MOST INSTRUCTORS HAVE FOUND THAT CLASS PERFORMANCE AND STANDARDS ARE RAISED, NOT LOWERED.

56. CBI IS ACCUSED WITH TEACHING FOR THE TEST. WITH CBI YOU DO NOT TEACH THE TEST, BUT FOR THE SKILLS THE TEST IS TO MEASURE. ONE PRINCIPLE IN CBI IS THAT TESTING SHOULD NOT BE A PSYCHOLOGICAL GAME IN WHICH THE STUDENTS TRY TO OUTGUESS THE INSTRUCTOR.

57. CBI INCRE SES STUDENT EFFICIENCY SINCE LESS TIME IS SPENT STUDYING THE NONESSENTIAL ITEMS.

58. SOME INDIVIDUALS CLAIM THAT CBI WON'T WORK IN THEIR COURSE OR FIELD. FOR SOME SUBJECTS, IT IS MORE DIFFICULT TO SPECIFY PRECISELY THE DESIRED STUDENT PERFORMANCES. FORTUNATELY, FOR VOCATIONAL EDUCATORS MOST VOCATIONAL-TECHNICAL COURSES ARE EASILY CONVERTED TO A CBI APPROACH BECAUSE THEY CONSIST OF A NUMBER OF TASKS RELATED TO JOB REQUIREMENTS.

59. MANY TEACHERS FEEL THAT THEY DO NOT HAVE THE TIME TO ADEQUATELY SUPERVISE STUDENTS WORKING ON DIVERSE LEARNING TASKS. WHEN THESE PROGRAMS HAVE BEEN TRIED, MOST STUDENTS CAN QUICKLY ADAPT.

60. MORE ADVANCED AND RESPONSIBLE STUDENTS CAN TUTOR OTHER STUDENTS AS THEY WORK IN GROUPS. IN SOME SITUATIONS, PARAPROFESSIONALS MAY BE EMPLOYED TO AID WITH SUPERVISING AND RECORDKEEPING.

61. CB INSTRUCTIONAL PROVIDES EDUCATION WITH A NUMBER OF PROFESSIONAL CHALLENGES.

62. THE TEACHER'S ROLE IS CHANGED FROM THAT OF A DISPENSER OF INFORMATION TO A RESOURCE PERSON AND A MANAGER OF INSTRUCTION.

63. INSTRUCTION MUST BECOME MORE OF A TEAM EFFORT OF ADMINISTRATION, COUNSELORS, TEACHERS, MEDIA AND INSTRUCTIONAL DESIGN SPECIALISTS AND REPRESENTATIVES OF BUSINESS AND INDUSTRY.

64. STUDENTS' RESPONSIBILITIES AND SELF DISCIPLINE ARE INCREASED AS THEY BECOME MORE INVOLVED.

65. COMPETENCIES RELATED TO SUCCESSFUL EMPLOYMENT MUST BE IDENTIFIED AND MINIMUM CRITERION LEVELS FOR PERFORMANCE SPECIFIED.

66. APPROPRIATE SOFTWARE AND LEARNING MATERIALS MUST BE SELECTED OR DEVELOPED.

67. EVALUATION PROCEDURES FOR A CRITERION REFERENCED APPROACH MUST BE ESTABLISHED WITH PROCEDURES FOR RECORDING AND REPORTING STUDENT COMPETENCIES.

68. COMPETENCY-BASED INSTRUCTIONS PROVIDE MUCH PREMISE AND MANY EXCITING CHALLENGES FOR THOSE INDIVIDUALS IN VOCATIONAL EDUCATION.

69. THIS SLIDE PROGRAM WAS ADAPTED FROM A PRESENTATION DEVELOPED BY DR. F.M. MILLER, ASSOCIATE PROFESSOR, DEPARTMENT OF PRACTICAL ARTS AND VOCATIONAL-TECHNICAL EDUCATION AT THE UNIVERSITY OF MISSOURI. IT WAS WRITTEN BY ROBERT SCHWINDT AND PRODUCED BY GARY TIPTON FOR THE MEDIA CENTER.

70. THIS PRESENTATION WAS DEVELOPED UNDER A GRANT FROM THE RESEARCH COORDINATING UNIT OF THE MISSOURI DEPARTMENT OF ELEMENTARY AND SECONDARY EDUCATION.

COMPETENCY-BASED EDUCATION: PROCEDURES FOR IMPLEMENTING A PROGRAM

COMPETENCY-BASED EDUCATION: Procedures for Implementing a Program - Script

1. (Employer) "Well Jim, it looks like your grades are good."

   (Employer thinks to himself) "But do these grades mean he can weld well enough to work in this plant?"

2. (First student) "I really enjoy being in the welding program, especially welding in the lab."

   (Second student) Me, too; but do you think we can weld good enough to get a good job?

3. (Teacher) "Good job Jim! Your welding is really improving."

   (Teacher thinks to himself) "But am I teaching him everything he needs with technology changing so fast?"

4. (Music up)

   (Narrator) These comments and questions are common today among students, teachers, and employers.

5. (Narrator) Undoubtedly, you are doing a good teaching job, but do you ever wonder if you are teaching all of the things that your students need for today's jobs?

6. Does it bother you that some students do not really master one skill well enough before the class must move on,

7. or that some students don't seem to understand what you are teaching in the class and have trouble with the tests?

8. You have probably seen and read articles about competency or performance-based education and wondered just how you would go about setting up your program for such an approach to teaching.

9. Well, a competency-based educational program is easier to set up and maintain than you think.

10. In this program we will discuss the procedures to be used in identifying the tasks or competencies to be developed in a vocational program. Also, we will outline procedures to follow in organizing the curriculum into modules with each module centered on one essential task.

11. We will describe ways to select, organize, and manage instructional materials and activities to use in teaching these tasks or competencies. Finally, we will examine ways to evaluate student performance in relationship to these competencies.

12. When curriculum is changed to a competency-based approach, there is an opportunity to examine the relevance and importance of what has been taught in the past.

13. The first step is to identify the competencies that should be taught in the vocational program.

14. A competency is an educational term for a task. It can also be described as the skills, attitudes, and knowledge needed by a person to perform at a level appropriate for entry-level employment. In this presentation we will use the words "task" and "competency" interchangeably.

15. Many resources are available to help the instructor identify the tasks to be taught in a vocational program. Textbooks and other reference materials should be reviewed. Many of the recent textbooks list student competencies for each chapter.

16. Instructors in the teacher education departments of state colleges and universities often have task listings or can help identify tasks in the occupational area.

17. State Department of Education program officers are also available to help locate task inventories from yours and other states.

18. Most states now have instructional materials centers and media production departments where curriculum materials are collected and disseminated to instructors.

19. Vocational program advisory committees can be valuable resources to develop competencies to be included, or to evaluate competency lists.

20. The American Welding Society and other technical associations offer lists of competencies required in the welding industry.

21. After a listing of tasks has been collected from one or more of the sources mentioned, it should be reviewed by representatives of local industries to help determine several things; first, if the tasks are still being performed in the industries where graduates will most likely work.

22. Second, the amount of time workers spend daily on each task. Is it something that is done daily, or is the task performed only occasionally?

23. Third, the difficulty of each task to be learned and performed. Is it something that can be easily learned, or will it take students a great deal of practice to master the skill?

24. And finally, when will the employee be performing the task? Is it something that a new employee will begin doing immediately, or is the task done only by experienced workers?

25. There are several ways to perform the task verification. Workers and supervisors may be interviewed to determine what they do and what competencies they feel should be taught.

26. Local advisory committee members may be asked to review the task list. These people should be actively involved in setting up the competency-based program as they are a vital link between the vocational program and the community.

27. A survey instrument can be developed and mailed to people in business and industry and to other instructors.

28. While the task analysis is being performed, administrators and instructors should be analyzing the instructional setting and the characteristics of the students to be served.

29. In analyzing characteristics of students, consider these questions. Will students with special needs be in the program? If so, how can the facilities and equipment be modified to facilitate their learning?

30. Will all students enter with no skill in the occupational area, or will they have various levels of knowledge and skill performance?

31. Are there special learning problems that some students have as they enter t program? For example, can they read at a level which will allow them to comprehend what is in the textbook? Must there be alternative ways of providing information, such as audio tapes?

32. In setting up a competency-based instructional program, the instructor must work closely with the counseling staff so that the counselors are aware of program characteristics, and so the teacher can develop instructional strategies for students with special needs.

33. The instructional setting should be analyzed to determine if the lab equipment is adequate and comparable to what graduates will use in business and industry. Again, the advisory committee would be valuable in evaluating facilities and equipment.

34. How many student work stations are available in the lab? And how many students can safely work in the lab at one time? Remember that in a competency-based program students will be working on different skills since their rate of progress is different.

35. How much time can students spend in the classroom or lab? Do you have adequate instructional staff? Can you hire teacher assistants to supervise students at times other than their regular class schedule?

36. Study carrels for individual study would be helpful.

37. The type of instruction to be provided may depend on the audio-visual equipment available. Will film projectors, slide projectors, audio tape players, or videotape playback units be available?

38. Does the institution have a library so students can check out and study materials related to their occupational areas?

39. Does the institution have a media production department to help the instructors develop audio-visual presentations?

40. Your budget could include funds for the purchase of commercially prepared media presentations. Before purchase, such presentations should be previewed to see if they teach the tasks identified in the task analysis.

41. Although the institution may be equipped to implement a competency-based program, the attitude of the instructors in the department is a vital consideration. For this program to be successful, all instructors must actively support it.

42. Equally important is the strong support of the administration. Administrators must be willing to change policies regarding acceptable student progress, grading procedures, and course completion rates.

43. Since students will be engaged in a variety of activities both in the classroom and lab, a teacher assistant would be helpful. With an assistant, more students can be working in the department at one time.

44. Assuming that competencies have been identified, the instructional setting is appropriate, and the instructional staff support the competency-based program, the next concern is development of instructional materials and the program.

45. The list of previously developed competencies would be placed in the order in which they would be best taught. The skills should be listed in prerequisite order so that the students have mastered prerequisite skills before they begin the next competency.

46. The competencies should be grouped into units of instruction. Those competencies that are related should be placed in the same unit. These units then serve as the basis for developing courses.

47. These competencies that have been identified will serve as topics for the basic instructional unit in the program. These units contain modules of instruction. The module will present the information and activities that a student needs to master the competency.

48. The instructor should list the various skills, attitudes, and topics of information that the student will need. Then arrange these in the order they should be presented to the student.

49. This order will then serve as the framework for organizing the objectives, information sheets, learning activities, and checkpoints within the module.

50. The content analysis that was just completed identified the competencies; that is, the skills, knowledge, and attitudes that the students need to learn. From these, the objectives for the module can now be developed.

51. The objectives tell the students what is expected of them in the course. They will help them evaluate their own progress and prepare for evaluation.

52. The objectives are also valuable to the instructor. They serve as a guide to prepare learning activites, and to develop evaluation plans and instruments.

53. An objective should consist of three components. It will state the performance expected from the student, the conditions under which the student is expected to operate, and the acceptable level of student performance.

54. For example, the conditions for this objective include using 1/8 inch metal, E-60-10 electrode, and a direct current welder. The student performance is to make an overhead butt weld. Passing the guide bend test is the level of performance specified in this objective.

55. The conditions under which the student performs a given task should be as similar as possible to that under which they will be working. In other words, the equipment and materials should be similar to those of business and industry.

56. Finally, the level of performance expected should be comparable to that expected of a worker in business and industry. The weld may need to pass specified tests or a specified number of welds may be expected in a given amount of time.

57. Finally, the level of performance expected should be comparable to that expected of a worker in business and industry. The weld may need to pass specified tests or a specified number of welds may be expected in a given amount of time.

58. Several aspects of the module and the competency-based program require special attention. Three of these are: the development and use of student evaluation procedures, the selection of media materials, and the design of instructional activities.

59. Because of differences in the types of tasks, and differences in student background, interests, abilities, and learning styles, a variety of learning activities are needed.

60. Some tasks may require that the student develop a broad background of knowledge through reading, media presentations, small group discussion, or by identification of various tools or materials.

61. Since students have different interests, they should be given a choice of activities whenever possible. For example, several types of projects may be available as practice to develop a given competency.

62. Activities or special materials may need to be developed for students with special learning problems. For example, students with reading problems may use audio tapes while studying project sheets.

63. Additional activities may need to be developed for students with special interests in a particular area, and for gifted students so they do not become bored.

64. All learning activities should include provisions for feedback so students know how they are doing. A teacher assistant may check student answers on written activity sheets. Sample projects may be placed in the lab area for student comparison with their projects.

65. When media materials need to be developed, the proper format must be selected. The kind used will depend upon what is to be presented and the equipment available. For example, audio tapes can be used to present information where a visual is not needed.

66. Slides or filmstrips can be used when visuals are necessary. Shots of equipment, materials, or steps to perform a skill may be included.

67. Films or videotapes should be used when motion is important in learning the competency.

68. Good evaluation procedures are necessary for the success of a competency-based instructional program.

69. A pretest should be developed to place students at the appropriate level of the program. Students need not repeat modules they are already competent in. In addition to placement, the test can also be used to identify the needs for remedial work for students with basic skill deficiencies.

70. Checkpoints may be needed within a module to determine if students can master individual components of a task before they are asked to perform the complete task. For example, students may be required to demonstrate safety practices before they are allowed to use a piece of equipment.

71. The module test must measure what the objective states at the level needed for entry-level employment in business and industry.

72. Ideally, a competency-based program should be evaluated on a pass/fail method where students are given credit and allowed to move to the next module only when they have met the stated competencies.

73. Traditional grading systems of A, B, C, and D are not appropriate in a competency-based program.

74. When the standards for entry into a job are used as the criteria for the objectives, students performing at this level may be given a grade of C or higher. Criteria or performance at a higher level may be established for higher grades.

75. Students' time requirements to meet the objectives are flexible, and many will strive for the highest level of achievement.

76. A minimum number of completed modules per grading period may be required for a C grade with an A or B grade based on additional modules completed. An incentive system may be used to encourage students to do extra work for a better grade or higher performance level.

77. Student progress forms will be needed. These forms should provide a record of start and completion dates, activities completed, and level of student performance. Students will need to keep a similar record in their class notebook.

78. Students may be given a numerical score on tests and activities or a rating scale such as unsatisfactory, acceptable, or excellent.

79. An evaluation form may be valuable to the student for job interviews, to show a record of their skills and abilities to their prospective employer.

80. The steps for establishing a competency-based education program have been discussed.

81. It is necessary that the instructors, advisory committee, administration, and counselors be firmly committed to the program.

82. In summary: to establish a competency-based program, identify the specific tasks to be included and review the list periodically.

83. Identify the specific characteristics of entering students to determine special learning problems to be encountered.

84. Test students as they enter the program so that they can be placed at the appropriate level, or so that remedial instruction can be provided.

85. Modularize instructional materials by developing modules for each competency. This may require the development of media presentations.

86. When possible, provide open lab time where students can spend extra time as required to master the competencies. Paraprofessionals may be hired to assist the teacher with lab time.

87. Allow students to move to the next module only after they have demonstrated competence in their present module.

88. Establish evaluation procedures to measure student rates of progress and mastery of the competencies.

89. Students leaving the competency-based program will possess definite employable skills. These skills will be documented on a competency checklist.

90. In a competency-based instructional program, the instructor will be able to spend more time with students individually and will know that the students have learned the skills well,

91. and the instructor can feel confident that students completing the program will be fully qualified and employable in their chosen vocations.

ALTERNATE WAYS FOR TEACHING LEARNING DISABLED STUDENTS IN WELDING CLASSES

ALTERNATE WAYS FOR TEACHING L.D. STUDENTS IN WELDING CLASSES - SCRIPT

EACH YEAR, THOUSANDS OF YOUNG MEN AND WOMEN ALL OVER AMERICA STREAM INTO VOCATIONAL SCHOOLS, EACH WITH PRIVATE DREAMS OF WHAT THEY WANT TO ACCOMPLISH IN THEIR LIVES.

UNDER THE CREED OF OUR FREE EDUCATIONAL SYSTEM, THESE STUDENTS HAVE MADE PERSONAL CHOICES OF VOCATIONAL CLASSES THAT THEY FEEL WILL HELP THEM ACHIEVE THESE DREAMS.

AND, JUST AS EACH DREAM IS DIFFERENT, EACH STUDENT IS ALSO DIFFERENT--IN INTERESTS, ABILITIES, VALUES, AND SELF-ESTEEM.

IT IS THE MONUMENTAL TASK OF THE VOCATIONAL TEACHER TO TAKE EACH STUDENT, INDIVIDUAL IN WANTS AND NEEDS, AND TEACH THE STUDENT IN A WAY THAT THE INDIVIDUAL DREAM OF EACH CAN BECOME A REALITY.

IN RECENT YEARS, INTENSE CONCENTRATION HAS BEEN CENTERED, THROUGH LEGISLATION, ON THE INDIVIDUAL STUDENT WITH UNIQUE NEEDS AND PERHAPS, UNIQUE DREAMS - THE HANDICAPPED STUDENTS; AND THEIR RIGHTS TO THE FULLFILLMENT OF THEIR DREAMS.

IN TRYING TO ESTABLISH GUIDELINES TO HELP THESE STUDENTS, HANDICAPPING CONDITIONS HAVE BEEN DIVIDED INTO MANY CATEGORIES. THIS HELPS TO DEFINE TEACHING METHODS AND MATERIALS NECESSARY TO EDUCATE THE STUDENTS, AND ALLOW THEM TO BE SUCCESSFUL IN THEIR STUDIES.

ONE IMPORTANT ASPECT ESTABLISHED IN METHODOLOGY FOR TEACHING MOST HANDICAPPED STUDENTS IS MAINSTREAMING; PLACING MOST HANDICAPPED STUDENTS INTO REGULAR CLASSROOMS IN AS NEAR NORMAL LEARNING CONDITIONS AS IS POSSIBLE.

IN ADDITION TO ATTEMPTING TO ANSWER THE NEEDS OF OTHER STUDENTS, THE VOCATIONAL TEACHER, THEN, IS EXPECTED TO EDUCATE TO THE FULLEST POTENTIAL, THE HANDICAPPED STUDENT, AND ALLOW THIS STUDENT TO ALSO REALIZE THE FULLFILLMENT OF HIS OR HER DREAMS.

THE FIRST STEP IN SETTING UP A COURSE OF STUDY FOR THE HANDICAPPED STUDENT MUST BE COMMUNICATION: COMMUNICATION BETWEEN ALL PARTIES CONCERNED.

THE FIRST LINE OF COMMUNICATION SHOULD BE A NOTIFICATION FROM THE SPECIAL NEEDS TEACHER TO THE VOCATIONAL TEACHER INVOLVED, IN WHICH IS STATED THE NAME, GRADE, AND AREA OF INTEREST IN WHICH THE STUDENT WISHES TO APPLY. A CONFERENCE OF CONCERNED EDUCATIONAL PERSONNEL SHOULD BE MADE.

IN THIS CASE, THE SPECIAL NEEDS TEACHER REPORTS THAT THE HANDICAPPING CONDITION KNOWN AS L.D. OR LEARNING DISABILITIES IS INVOLVED.

LEARNING DISABILITY MAY AFFECT CHILDREN WHO HAVE AN AVERAGE OR HIGHER INTELLIGENCE, BUT DUE TO HEREDITY, COMPLICATIONS DURING THE MOTHER'S PREGNANCY, A LAG IN NERVOUS SYSTEM DEVELOPMENT IN THE CHILD, OR A SLOWNESS IN THE DEVELOPMENT OF

CEREBRAL DOMINANCE IN THE BRAIN, THE STUDENT MAY HAVE A VERY LIMITED ABILITY TO LEARN IN ONE OR MORE SPECIFIC AREAS.

A LEARNING DISABILITY CONDITION MAY MANIFEST ITSELF IN ONE OR IN A COMBINATION OF SEVERAL WAYS. IT CAN BE SEEN IN ONE OR A COMBINATION OF SEVERAL CHARACTERISTICS.

THESE PHYSICAL CHARACTERISTICS COULD INCLUDE LESS COOPERATIVE ATTITUDES, LESS ABILITY TO COPE WITH NEW SITUATIONS, LESS ACCEPTANCE OF RESPONSIBILITY, LESS ABILITY TO COMPLETE ASSIGNMENTS AND LESS TACTFULNESS.

THEY MAY ALSO INCLUDE DIFFICULTY IN PAYING ATTENTION, AN INABLITY TO TELL LEFT FROM RIGHT OR TOP FROM BOTTOM, AND A DIFFICULTY WITH SPACE PERCEPTION.

DISCUSSION SHOULD ALSO INCLUDE, IN ADDITION TO THE DISABILITIES OF THE STUDENT,

THE SPECIFICS THAT WILL BE TAUGHT IN WELDING CLASS--METHODOLOGY AND SAFETY--AS WELL AS SPECIFIC CLASS RULES AND REGULATIONS. OBJECTIVES SHOULD BE DISCUSSED THAT ARE BELIEVED TO BE WITHIN THE REACH OF THE STUDENT.

A SECOND CONFERENCE SHOULD THEN BE CALLED THAT INCLUDES THE TEACHERS, COUNSELOR, PARENTS, AND THE STUDENT.

FROM THESE CONFERENCES THE WELDING TEACHER SHOULD HAVE ENOUGH INFORMATION TO BEGIN TO DEVELOP METHODOLOGY AND OBJECTIVES TO TEACH THE HANDICAPPED STUDENT.

WITH THIS INFORMATION, THE TEACHERS SHOULD THEN DEVELOP AN I.E.P. (AN INDIVIDUALIZED EDUCATION PLAN).

THIS IS A LESSON PLAN THAT STATES THE METHODOLOGY TO BE USED TO TEACH, THE MATERIALS TO BE USED, AND THE OBJECTIVES OF WHAT THE STUDENT WILL BE EXPECTED TO BE ABLE TO DO AT THE END OF A GIVEN TIME.

THE GOALS AND OBJECTIVES SHOULD BE ONES THAT ALL PERSONS INVOLVED AGREE UPON AS BEING REALISTIC AND WITHIN REACH OF THE STUDENT.

COOPERATIVE METHODS BETWEEN THE TWO CLASSROOM TEACHERS CAN BE DISCUSSED, AND EACH TEACHER'S LESSON CONTENT CAN BE REINFORCED.

FOR INSTANCE, POSTERS DEPICTING SAFETY RULES IN THE WELDING SHOP COULD BE MADE BY THE STUDENT IN HIS SPECIAL NEEDS CLASS AS AN ART PROJECT. THE POSTERS COULD THEN BE DISPLAYED IN THE SHOP WHERE THE STUDENT WILL CONSTANTLY BE REINFORCED IN SAFETY RULES BY MATERIALS WITH WHICH HE IS FAMILIAR.

THE WELDING TEXT AND SPECIFIC ARITHEMETIC PROCEDURES USED IN WELDING COULD BE USED IN THE SPECIAL NEEDS CLASSROOM AS A READING TEXT, AND AS MATH LESSONS.

THE SPECIAL NEEDS TEACHER COULD ENCOURAGE THE STUDENT TO TELL CLASMATES WHAT IS BEING TAUGHT IN THE CLASS, INCREASING SELF ESTEEM AND REINFORCING NEW CONCEPTS LEARNED.

SO THE SECOND STEP IN TEACHING THE LEARNING DISABLED STUDENT IN THE REGULAR CLASSROOM WELDING SETTING IS COOPERATION: COOPERATION OF ALL PERSONS CONCERNED.

THE WELDING TEACHER CAN ALSO BEGIN METHODS OF HIS OWN THAT WILL HELP THE STUDENT LEARN. CAREFUL PLANNING OF THE DAILY ROUTINE CAN CREATE CONSISTENCY THAT IS NEEDED BY L.D. STUDENTS, AND ANY BREAK IN THE ROUTINE SHOULD, IF POSSIBLE, BE MADE KNOWN IN ADVANCE.

ANOTHER METHOD OF TEACHING THAT CAN BE USED IS TO PRESENT APPROPRIATE SLIDES AND FILMS WHENEVER POSSIBLE TO REINFORCE LECTURE MATERIAL.

TEXTBOOKS AND LECTURES COULD BE RECORDED ON TAPE FOR THE STUDENT TO LISTEN TO AS HE READS AT HOME, OR IN THE SPECIAL NEEDS CLASSROOM.

AS MANY METHODS OF TEACHING AS IS POSSIBLE UTILIZING AS MANY COMBINATIONS OF "SENSES"--VISUAL, AUDITORY, TACTILE, AND IN SOME CASES, OLFACTORY, (SMELL)--SHOULD BE USED IN THE LAB AREA, AS WELL AS IN THE CLASSROOM.

THE INSTRUCTOR SHOULD ALLOW THE STUDENT TO MANIPULATE LEARNING MATERIALS IN THE PROPER WAY BEFORE ACTUAL USE OCCURS. BREAK TASKS INTO SMALL COMPONENTS FOR PRESENTATION TO ALLOW FOR SUCCESS.

MAKE DIRECTIONS EXPLICIT. PROVIDE OPPORTUNITIES FOR RELEARNING. LEARN AND UTILIZE THE STUDENT'S STRONG AREAS TO HELP DEVELOP SKILL IN OTHER AREAS.

ALWAYS IDENTIFY PREREQUISITE SKILLS AND/OR INFORMATION AND "TEST" THE STUDENT ON THESE BEFORE PRESENTING NEW SKILLS AND/OR LEARNING. THE TESTING OR ASSESSMENT CAN BE DONE IN SEVERAL WAYS THROUGH ORAL TESTS OR CONVERSATION, AND FREQUENT ASSESSMENT OF SKILLS THROUGH PERFORMANCE. LEARNING DISABILITIES STUDENTS CAN SOMETIMES PHYSICALLY PERFORM A TASK THAT THEY ARE UNABLE TO VERBALIZE ABOUT.

CHECKLISTS CAN BE MADE TO CHECK THE STUDENT'S SKILLS AS THEY ARE LEARNED. BE PREPARED TO REPEAT A CONCEPT SEVERAL TIMES IF THE INFORMATION IS COMPLEX, AND BE PREPARED TO ANSWER MANY QUESTIONS. ANOTHER AREA IN WHICH THE VOCATIONAL TEACHER CAN HELP THE LEARNING DISABLED STUDENT IS WITH SELF-CONCEPTS.

THE LEARNING DISABLED STUDENT OFTEN HAS A VERY LOW SELF-IMAGE DUE TO REPEATED FAILURES IN OTHER CLASSES. THROUGH CAREFUL PLANNING OF PROCEDURES THE TEACHER CAN ALLOW FOR SUCCESS IN LEARNING, WHICH IN TURN CAN CREATE A NEW SELF-IMAGE IN THE STUDENT.

IF THE INSTRUCTOR ALLOWS THE STUDENT TO HELP SET WEEKLY GOALS, IT WILL ALLOW RECOGNITION OF SUCCESS IN SELF THROUGH ACHIEVEMENT OF THESE GOALS. REMEMBER, THE LEARNING DISABLED STUDENT IS NOT MENTALLY RETARDED AND CAN UNDERSTAND AND RETAIN THESE GOALS IN MOST CASES.

IF CRITICISM IS NECESSARY, IT SHOULD BE DONE IN PRIVATE AND IN A CONSTRUCTIVE MANNER. BE SURE NOT TO PUT IT ON THE BASIS OF "DUMB." THE STUDENT HAS ALREADY HEARD THIS THROUGHOUT THEIR LIFE.

DURING DISCUSSIONS, ENCOURAGE THE STUDENT TO GIVE SPECIFIC RESPONSES, BUT ALLOW TIME FOR SLOW RESPONSES. REMEMBER, IT TAKES TIME FOR THE STUDENT TO ASSIMILATE WORDS TO FULLY EXPLAIN WHAT THE THOUGHT MAY BE.

BE READY TO ADMIT YOUR OWN MISTAKES THAT YOU WILL MAKE IN TRYING THIS ALTERNATE METHOD OF TEACHING.

AT TIMES, THE HANDICAPPED STUDENT WILL SEEM TO "STICK" AT ONE SPACE IN TIME, OR EVEN REGRESS. THIS IS A TIME THAT WILL TRY YOUR PATIENCE, BUT THIS IS A TIME FOR ENCOURAGEMENT WITHOUT THE PRESSURE OF YOUR DISPLEASURE. SUGGEST THAT THE TASKS MASTERED BE PRACTICED AT THESE TIMES.

YOUR ATTITUDE TOWARDS THIS STUDENT CAN SET THE STAGE FOR ACCEPTANCE AND ENCOURAGEMENT FOR THE REGULAR STUDENTS IN YOUR CLASSROOM TO FOLLOW.

PREPARE THESE STUDENTS BY TELLING THEM OF THE CHANGES IN TEACHING METHODS THAT YOU WILL BE MAKING FOR THIS STUDENT. IF THIS IS DONE SUCCESSFULLY, THE ATMOSPHERE WILL BE "JUST ANOTHER STUDENT LEARNING WELDING."

AS THE L.D. STUDENT BECOMES MORE PROFICIENT IN SKILLS, ASSIGN THE STUDENT ALONG WITH OTHER FIRST YEAR STUDENTS, TO WORK IN A GROUP WITH A MORE ADVANCED STUDENT WHO CAN HELP WITH THE PRACTICE OF SKILLS, AND HELP CORRECT INAPPROPRIATE ACTION AND LEARNING.

THROUGHOUT THE ENTIRE SCHOOL YEAR, THE COUNSELOR SHOULD BE KEPT INFORMED OF ANY PROBLEMS OR FRUSTRATIONS THAT YOU MAY NOT HAVE THE TIME TO COPE WITH.

THE COUNSELOR CAN BE A VALUABLE ASSISTANT IN HELPING TO WORK OUT THESE FRUSTRATIONS WITH THE STUDENT. REMEMBER, CONFERENCES SHOULD PERIODICALLY BE HELD WITH THE SPECIAL NEEDS TEACHER, COUNSELOR, AND VOCATIONAL TEACHER TO DISCUSS PROBLEMS, PROGRESS, AND SO ON.

FINALLY, PARENTS SHOULD BE INFORMED PERIODICALLY OF PROGRESS OR OF ANY PROBLEMS THAT ARISE. THE ATTITUDE OF THE FAMILY AT HOME WILL HAVE A GREAT EFFECT ON YOUR SUCCESS WITH THE STUDENT IN YOUR CLASS.

IF PART OF THE INSTRUCTOR'S DUTIES INCLUDE PLACEMENT OF THE STUDENTS HE HAS TRAINED, IT WOULD BE WISE IN THE CONFERENCE WITH THE PROSPECTIVE EMPLOYER TO GIVE INFORMATION RELEVANT TO THE HANDICAPPING CONDITION THAT WILL AFFECT THE JOB PERFORMANCE.

IT WILL BE USEFUL TO THE EMPLOYER AS WELL AS TO THE STUDENT TO MAKE SURE THE EMPLOYER IS MADE AWARE OF ANY LIMITING ABILITIES THE STUDENT MAY HAVE.

HOWEVER, THE INSTRUCTOR SHOULD STRESS THAT THE LEARNING DISABILITY STUDENT CAN PERFORM ADEQUATELY THE OTHER DUTIES TO WHICH HE IS ASSIGNED.

EDUCATING THE HANDICAPPED IS NOT A ONE-PERSON TASK. IT TAKES THE COOPERATIVE EFFORTS OF A TEAM OF INTERESTED PEOPLE, ALL WORKING TOWARD THE SAME GOAL--THE ACHIEVEMENT OF A YOUNG PERSON'S DREAM.

TEACHING THE PHYSICALLY HANDICAPPED IN THE WELDING PROGRAM

TEACHING THE PHYSICALLY HANDICAPPED IN THE WELDING PROGRAM

WITH THE CURRENT EMPHASIS ON MAINSTREAMING, YOU CAN EXPECT TO HAVE MORE PHYSICALLY HANDICAPPED STUDENTS ENROLLED IN YOUR CLASSES THAN YOU HAVE HAD IN THE PAST. IT WOULD BE IMPOSSIBLE TO PREPARE FOR EVERY POSSIBLE TYPE OF HANDICAP ONE MIGHT ENCOUNTER IN THE WELDING CLASS.

HOWEVER, IN THIS PRESENTATION A FEW GENERAL CONSIDERATIONS WILL BE PROVIDED WHICH MAY BE OF HELP WHEN WORKING WITH HANDICAPPED STUDENTS. FIRST, REMEMBER THAT THE PHILOSOPHY OF MAINSTREAMING HANDICAPPED STUDENTS INCLUDES THE GOAL OF MAINTAINING THE SAME QUALITY OF EDUCATION FOR HANDICAPPED STUDENTS AS FOR NON-HANDICAPPED STUDENTS. COURSE REQUIREMENTS ARE NOT REDUCED, THE PROCEDURES USED TO FACILITATE LEARNING ARE TAILORED TO THE NEEDS OF EACH INDIVIDUAL STUDENT.

EXAMPLES OF PROCEDURES WHICH MIGHT BE ALTERED WITHOUT ALTERING THE KNOWLEDGE TO BE LEARNED WOULD BE SUCH THINGS AS USING CLASSROOM INTERPRETERS FOR DEAF STUDENTS,

LOWERING, OR DESIGNING THE HEIGHT OF WORK BENCHES FOR WHEEL-CHAIR STUDENTS

OR EXTENDING TIME REQUIREMENTS ON A WRITTEN TEST FOR VISUALLY IMPAIRED STUDENTS. THESE ACCOMMODATIONS ALLOW THE HANDICAPPED STUDENT AN EQUAL CHANCE TO LEARN.

SECOND, REMEMBER THAT THE BEST SOURCE OF INFORMATION REGARDING THE TYPE OF HANDICAPPING CONDITION, LIMITATIONS, KIND OF ADAPTATIONS OR THE MODIFICATIONS REQUIRED FOR A PARTICULAR STUDENT IS THE INDIVIDUAL STUDENT.

DON'T BE AFRAID TO SPEAK OPENLY WITH THE STUDENT REGARDING HIS OR HER DISABILITY. SOME HANDICAPS, HOWEVER, ARE NOT VISIBLE AND AN INSTRUCTOR MAY NOT BE AWARE THAT THERE IS A NEED FOR MODIFICATIONS.

IT IS IMPORTANT, THEREFORE, THAT INSTRUCTORS MAKE A GENERAL STATEMENT EARLY IN THEIR CLASS THAT THEY ARE WILLING TO DISCUSS INDIVIDUALLY THE SPECIAL NEEDS OF ANY OF THEIR STUDENTS.

THIRD, MOST HANDICAPPED STUDENTS WANT TO BE INDEPENDENT AND WILL RESENT BEING TREATED WITH PITY OR OVER-PROTECTION. THE BEST PHILOSOPHY TO DEVELOP IS THAT THERE ARE NO HANDICAPS WHICH CANNOT BE OVERCOME WITH PROPER ADAPTIVE PROCEDURES. WITH THIS PHILOSOPHY, THE INSTRUCTOR WILL NOT FEEL SORRY FOR THE STUDENT NOR ALLOW THE STUDENT TO DWELL ON SELF-PITY.

FOURTH, REMEMBER THAT THERE ARE SUPPORTIVE AGENCIES AVAILABLE TO HELP THE HANDICAPPED INDIVIDUAL. THE PRIMARY AGENCY IS YOUR LOCAL OFFICE OF THE STATE DEPARTMENT OF VOCATIONAL REHABILITATION.

THIS AGENCY CAN ASSIST WITH STIPENDS FOR TUITION, A LIVING EXPENSE WHILE THE STUDENT IS IN TRAINING, AND SPECIAL SUPPORT SERVICES SUCH AS EYE GLASSES, HEARING AIDS, OR THERAPY.

ALSO, SOCIAL SECURITY SUPPLEMENTAL SECURITY INCOME CAN PROVIDE FINANCIAL ASSISTANCE UNDER CERTAIN CIRCUMSTANCES. THERE ARE VARIOUS OTHER SOCIAL SERVICE AGENCIES WHICH ASSIST WITH SPECIFIC DISABILITY GROUPS ON A MORE LIMITED BASIS. YOUR LOCAL WELFARE AGENCY SHOULD BE ABLE TO ASSIST YOU IN LOCATING THESE AGENCIES AND DETERMINING WHICH ONES PROVIDE THE SERVICES YOU SEEK.

WHEN WE BEGIN TO LOOK AT SPECIFIC HANDICAPPED CONDITIONS AMONG STUDENTS WHO MIGHT ENTER THE WELDING CLASS, IT IS GOOD TO TAKE A HARD LOOK AT JUST WHAT IS REQUIRED OF AN INDIVIDUAL IN A WELDING JOB. WE FEEL THAT MOST PEOPLE WOULD AGREE THAT WELDING REQUIRES EYE-HAND COORDINATION.

THEREFORE, INDIVIDUALS WITH SEVERE MOTOR COORDINATION PROBLEMS OR THE SEVERELY VISUALLY IMPAIRED WOULD PROBABLY NOT BE SUCCESSFUL IN WELDING OR SUCCESSFUL ONLY IN VERY LIMITED WELDING AREAS.

HOWEVER, THE REQUIREMENTS OF WELDING DO NOT SAY THAT A PERSON MUST, FOR EXAMPLE, HAVE 20/20 VISION OR HAVE USE OF BOTH LEGS AND/OR BOTH ARMS, OR NORMAL HEARING. AND THE AMOUNT OF PHYSICAL ACTIVITY REQUIRED DEPENDS UPON THE PARTICULAR WELDING JOB.

THERE APPEAR TO BE, THEN, SEVERAL DISABILITY GROUPS WHICH CAN BE ACCOMMODATED IN THE WELDING CLASS. WE WANT TO EMPHASIZE THAT NO ONE SHOULD EVER ASSUME AN INDIVIDUAL CANNOT WELD BECAUSE HE OR SHE POSSESSES A CERTAIN DISABILITY. INDIVIDUALS SHOULD BE ALLOWED TO TRY, HAVING THE RIGHT TO FAIL OR SUCCEED.

THE KEY IS TO INFORM EVERYONE INVOLVED OF THE POSSIBLE CONSEQUENCES AND THE RISKS INVOLVED, THEN LET THE STUDENT MAKE AN EDUCATED DECISION AS TO WHETHER THEY WANT TO TRY TO LEARN TO WELD.

PART OF PROVIDING GOOD INFORMATION ON WHICH TO BASE A DECISION MAY INVOLVE AN EVALUATION PRIOR TO TRAINING. ALL EVALUATIONS SHOULD START WITH AN INTERVIEW WITH THE STUDENT. REMEMBER, HE OR SHE IS YOUR BEST SOURCE OF INFORMATION. TO EVALUATE SKILLS, YOU MAY WANT TO HAVE THE STUDENT ACTUALLY TRY SOME SIMPLE WELDING TECHNIQUES IN YOUR LAB OR YOU MAY WANT TO PURCHASE ONE OF THE COMMERCIALLY PREPARED WELDING JOB SAMPLES.

NOW, TO ADDRESS MAJOR DISABILITY GROUPS WHICH HAVE BEEN SUCCESSFUL IN WELDING. THESE GROUPS INVOLVED IMPAIRMENTS OF HEARING, VISION, SPEECH, AND ORTHOPEDIC IMPAIRMENTS INCLUDING AMPUTATIONS.

IN WORKING WITH THE HEARING IMPAIRED, YOU SHOULD REALIZE THAT WE ARE TALKING ABOUT AN IMPAIRMENT WHICH RANGES FROM PARTIAL HEARING LOSS, PERHAPS REQUIREING HEARING AIDS, TO TOTAL DEAFNESS. SOME OF THE SEVERELY IMPAIRED OR TOTALLY DEAF MAY USE SPEECH READING WHILE OTHERS MAY USE SIGN LANGUAGE.

IN THE CLASSROOM, THEREFORE, THEY MAY REQUIRE THE USE OF AN INTERPRETER WHO SITS FACING THE STUDENT AND SILENTLY REPEATS WHAT IS SAID OR A SIGNER WHO RELAYS THE INFORMATION BY THE USE OF HAND SIGNALS. REGARDLESS OF THE DEGREE OF IMPAIRMENT, IT IS IMPORTANT TO REMEMBER THAT THESE STUDENTS WILL RELY HEAVILY ON SIGHT.

THIS IMPLIES THAT THEY MUST HAVE A CLEAR LINE OF VISION. INSTRUCTORS MUST REMEMBER NOT TO TURN AWAY OR MOVE AROUND, NOT TO CHEW GUM AND NOT TO PUT THE STUDENT IN A POSITION OF LOOKING DIRECTLY INTO A LIGHT SOURCE.

WHEN SPEAKING TO THE HEARING IMPAIRED, DON'T MAKE EXAGGERATED LIP MOVEMENTS, BUT SPEAK DISTINCLY. ONLY ABOUT 30 PERCENT OF ALL SPEECH IS DISCERNED BY SPEECH READING.

THEREFORE, IF THE STUDENT APPEARS CONFUSED REWORD YOUR STATEMENT AND DON'T BE AFRAID TO USE PENCIL AND PAPER OR THE BLACKBOARD IF IT WILL FACILITATE COMMUNICATION. ASSIST THE DEAF STUDENT IN GROUP DISCUSSIONS BY RESTATING QUESTIONS AND ANSWERS FROM THE GROUP. NOTETAKING IS A PROBLEM SINCE THE STUDENT CAN'T LOOK AT THE SPEAKER AND THE NOTEBOOK AT THE SAME TIME.

TRY PROVIDING A CLASS SUMMARY OR ARRANGING FOR ANOTHER STUDENT TO SHARE A COPY OF CLASS NOTES.

SIMILARLY, CONSIDER PROVIDING A SCRIPT OF THE SOUNDTRACK WHEN AUDIOVISUALS ARE USED. ABOVE ALL, NEVER TALK DOWN TO THE STUDENT; THE DIFFICULTY IS IMPAIRED HEARING, NOT IMPAIRED INTELLIGENCE.

HEARING IMPAIRED STUDENTS WILL EXPERIENCE LITTLE DIFFICULTY IN THE WELDING LABORATORY. INSTRUCTORS NEED TO ESTABLISH VISUAL CONTACT OR TOUCH THE HEARING IMPAIRED STUDENT TO GET THEIR ATTENTION.

AS WITH HEARING IMPAIRMENTS, VISUAL IMPAIRMENTS DENOTE A RANGE OF DISABILITY FROM LIMITED SIGHT, STARTING AT 20/79, TO LEGAL BLINDNESS, 20/200 OR LESS.

WE WILL PRIMARILY ADDRESS THE PARTIALLY SIGHTED AS THEY OFFER THE GREATER POTENTIAL FOR SUCCESS IN WELDING. HOWEVER, THE TOTALLY BLIND HAVE BEEN TRAINED AND PLACED SUCCESSFULLY IN SPOT WELDING POSITIONS. POTENTIAL PROBLEMS ENCOUNTERED BY THE VISUALLY IMPAIRED INCLUDE EYE STRAIN AND READING DIFFICULTY.

WHEN A VISUAL IMPAIRMENT IS SUSPECTED, THE STUDENT SHOULD BE GIVEN AN EYE EXAMINATION BY A COMPETENT OPTOMETRIST TO DETERMINE THE DEGREE OF VISUAL IMPAIRMENT.

STANDARD SIZE OR POOR QUALITY PRINT OF PRINT OF CERTAIN COLORS SUCH AS LIQUID DUPLICATION PURPLE MAY NOT BE SUFFICIENT FOR VISUALLY IMPAIRED STUDENTS.

LEARNING AIDS FOR THIS GROUP MIGHT INVOLVE EXPLAINING VISUAL MATERIALS WRITTEN ON THE CHALKBOARD OR IN AUDIO-VISUAL AIDS. IT MAY ALSO HELP TO OBTAIN EITHER TAPED TEXTBOOKS OR THE SERVICES OF A READER. A READER IS A PERSON TRAINED AND HIRED TO READ TEXTBOOKS OR EXAMINATIONS OR OTHER WRITTEN MATERIAL TO THE VISUALLY HANDICAPPED STUDENT.

OTHER AIDES SUCH AS WIDE LINED NOTEBOOK PAPER AND MAGNIFYING LENSES ARE AVAILABLE AND HELP IN LOCATING THEM MAY BE OBTAINED BY CONTACTING YOUR STATE BUREAU FOR THE BLIND.

INSTRUCTORS SHOULD CONSIDER GIVING THESE STUDENTS ORAL RATHER THAN WRITTEN TESTS. IF ORAL TESTS ARE GIVEN, BE SURE TO REPEAT QUESTIONS AND COMPLETED ANSWERS AS MANY TIMES AS REQUIRED AND ALLOW EXTRA TIME.

FOR WELDING, MAGNIFYING LENSES, CALLED CHEATERS, MAY BE PLACED IN THE WELDING HELMET NEXT TO THE SHIELD LENS TO ENLARGE THE VISUAL FIELD.

THESE ARE AVAILABLE THROUGH MOST WELDING EQUIPMENT DISTRIBUTORS. IT IS VERY DIFFICULT TO WELD WITH A VISUAL IMPAIRMENT

AND THE INSTRUCTOR SHOULD BE ALERT TO STUDENTS WITH UNDIAGNOSED VISUAL IMPAIRMENTS. ENCOURAGE STUDENTS TO TELL YOU IF THEY EXPERIENCE UNUSUAL EYE STRAIN, BLURRING, OR HEADACHES WHILE WELDING.

INDIVIDUALS WITH SPEECH IMPAIRMENTS SHOULD NOT REQUIRE ANY SIGNIFICANT CLASSROOM ACCOMMODATIONS. THE PRIMARY CONSIDERATIONS ARE TO ENCOURAGE AND TO CLARIFY COMMUNICATION.

THE SPEECH IMPAIRED SHOULD BE ALLOWED EXTRA TIME TO EXPRESS THEMSELVES IN CLASS AND PERHAPS EXTRA ENCOURAGEMENT TO DO SO. INSTRUCTORS SHOULD NOT HESITATE TO ASK FOR REPETITION AND SHOULD CURB THE URGE TO TRY AND COMPLETE SENTENCES FOR THE STUDENT.

SUMMARIZING IS HELPFUL TO ASSURE THAT YOU UNDERSTOOD WHAT THE STUDENT'S MESSAGE WAS.

REMEMBER THAT THE MORE TIME YOU SPEND WITH THE STUDENT, THE BETTER YOUR UNDERSTANDING OF HIS SPEECH WILL BECOME.

THE TERM ORTHOPEDIC IMPAIRMENT COVERS A VERY WIDE RANGE OF DISABILITIES. FOR THE PURPOSE OF THIS PRESENTATION, WE WILL DISCUSS ONLY BACK DISORDERS, PARAPLEGIA, AND AMPUTATIONS. FOR EACH OF THE GROUPS OF DISABILITIES IT IS ADVISEABLE TO OBTAIN MEDICAL REPORTS AND DOCTOR'S RELEASES ALLOWING THE PERSON TO WORK IN THE FIELD OF WELDING. THESE REPORTS MAY PROVIDE INFORMATION REGARDING FUNCTIONAL LIMITATIONS, ALTHOUGH THEY ARE OFTEN VERY VAGUELY STATED. AGAIN, THE BEST SOURCE OF INFORMATION ABOUT A STUDENT'S ABILITIES IS THE STUDENT.

SOME WELDING JOBS REQUIRE LESS LIFTING THAN OTHERS. THEREFORE, STUDENTS WITH SEVERE BACK PROBLEMS WILL NEED TO BE PLACED IN A SPECIFIC TYPE OF WELDING JOB BASED ON THE AMOUNT OF LIFTING REQUIRED IN THE JOB.

IN FACT ALL PEOPLE ARE LIMITED IN THE AMOUNT OF WEIGHT THEY CAN LIFT AND STUDENTS SHOULD BE ENCOURAGED TO GO SLOWLY AND CAUTIOUSLY TEST THEIR LIMITS. HAVE THEM TELL YOU ABOUT ANY PAIN OR DISCOMFORT THEY ENCOUNTER. SPECIAL ORTHOPEDIC BELTS AND BRACES WILL OFTEN HELP STUDENTS WITH SEVERE BACK PROBLEMS.

THERE ARE MANY PARAPLEGIC WELDERS CONFINED TO WHEEL CHAIRS MAKING A LIVING IN THE WELDING INDUSTRY. AGAIN, THEY WILL NEED SPECIAL PLACEMENT UPON COMPLETION OF TRAINING. DURING TRAINING, IT WILL BE NECESSARY TO ASSURE THAT THE HEIGHT OF WORK BENCHES AND TABLES WILL ALLOW THE WHEELCHAIR TO MOVE EASILY AROUND THEM.

CHECK THE GENERAL ACCESSABILITY OF YOUR BUILDING TO MAKE SURE DOORS, WATER FOUNTAINS, AND REST ROOMS ARE ACCESSABLE TO PARAPLEGIC STUDENTS. IF THESE FACILITIES ARE NOT APPROPRIATE, SPECIAL MODIFICATIONS WILL NEED TO BE MADE.

STUDENTS IN WHEEL CHAIRS MUST BE PROVIDED WITH PROTECTIVE LAP COVERS TO PROTECT THEM FROM SPARKS. LEATHER APRONS WORN IN ADDITION TO STANDARD PROTECTIVE WELDING CLOTHING WORK WELL FOR THIS PURPOSE.

AMPUTATIONS VARY IN MANY WAYS. STUDENTS MAY BE MISSING EITHER AN ARM OR LEG OR POSSIBLY BOTH ARMS, BOTH LEGS, OR AN ARM AND A LEG. ALSO, THE DEGREE OF AMPUTATION MAY VARY FROM COMPLETE REMOVAL OF AN ARM OR LEG TO A PARTIAL LOSS. AMPUTE MEDICAL RECORDS MAY DESCRIBE LOSSES AS A/E OR ABOVE THE ELBOW, B/E OR BELOW THE ELBOW, A/K OR ABOVE THE KNEE, OR B/K OR BELOW THE KNEE.

MOST STUDENTS WITH AN AMPUTATION WILL BE FITTED WITH A PHROSTHETIC ATTACHMENT. THROUGH CONSISTENT USE, THESE DEVICES MAY CAUSE IRRITATION AND DISCOMFORT. YET A GREAT DEGREE OF SKILL CAN BE DEVELOPED IN THEIR USE. ONLY ONE HAND IS REQUIRED TO BECOME A PROFICIENT WELDER OPERATOR. PHROSTHETIC ARMS SERVE WELL FOR GIVING ADDITIONAL SUPPORT NEEDED FOR WELDING. DOCUMENTED ACCOUNTS REPORT OF STUDENTS WITH BOTH ARMS REPLACED WITH PROSTHETIC DEVICES SERVING AS WELDER OPERATORS.

SPECIAL HOOKS, BRACES, AND SUPPORTS MAY NEED TO BE DEVELOPED SO AMPUTEES CAN FUNCTION IN THE WELDING SITUATION. REMEMBER, EVERY CASE MUST BE EVALUATED DIFFERENTLY AND EACH STUDENT MUST BE GIVEN THE OPPORTUNITY TO DEVELOP TO THE BEST OF THEIR ABILITY.

THE PROOF OF ANY TRAINING PROGRAM IS IN THE PLACEMENT OF ITS GRADUATES. PLACEMENT IS A DIFFICULT JOB AT BEST. IT CAN BE MORE DIFFICULT WHEN THE STUDENT IS DISABLED.

MISINFORMED EMPLOYERS MAY BE RELUCTANT TO HIRE THE DISABLED BECAUSE OF MYTHS THEY HAVE HEARD AND IT IS IMPORTANT FOR YOU TO HELP CLARIFY THESE MISCONCEPTIONS.

FIRST OF ALL, EXPLAIN OPENLY THE STUDENT'S DISABILITY AND ITS IMPLICATIONS FOR EMPLOYMENT. BE SURE TO GIVE A CLEAR AND COMPLETE DESCRIPTION OF THE STUDENT'S SKILLS AND ABILITIES. NEXT IS TO BE READY TO CONFRONT PERHAPS THE MOST COMMONLY ASKED EMPLOYER QUESTION,

"WON'T IT RAISE INSURANCE RATES?" THE ANSWER IS NO! A STUDY BY THE U. S. DEPARTMENT OF LABOR DEMONSTRATED THAT DISABLED WORKERS HAD FEWER DISABLING INJURIES THAN THEIR NON-DISABLED CO-WORKERS EXPOSED TO THE SAME DANGERS.

A MORE PERTINENT STUDY BY THE U. S. CHAMBER OF COMMERCE AND THE NATIONAL ASSOCIATION OF MANUFACTURERS SHOWED THAT OUT OF 279 COMPANIES SURVEYED, 90 PERCENT REPORTED THAT THERE WAS NO EFFECT ON INSURANCE COSTS AS A RESULT OF HIRING DISABLED WORKERS. THESE FACTS SHOULD BE BROUGHT TO THE ATTENTION OF PROSPECTIVE EMPLOYERS. SOME EMPLOYERS MAY HAVE A MORE PERSONAL CONCERN WITH HIRING THE HANDICAPPED. THEY MAY ASK HOW THEIR OTHER EMPLOYEES WILL ACCEPT IT. IN THIS CASE, PLEASE BRING TO THE EMPLOYER'S ATTENTION THAT THE MOOD FOR ACCEPTANCE WILL BE SET FIRST BY THE EMPLOYER. AS FOR THE CO-WORKERS, THE FEAR OF THE UNKNOWN WILL SUBSIDE AS THEY WORK BESIDE AND BEGIN TO SEE THE HANDICAPPED INDIVIDUAL AS A PERSON.

FOR THE MOST RETICENT EMPLOYERS, THERE ARE NEW PROGRAMS OF INTEREST. FIRST ARE RECENT TAX REFORMS WHICH PROVIDE SIGNIFICANT TAX CREDITS FOR HIRING HANDICAPPED WORKERS.

THE SECOND INVOLVES PARTIAL REIMBURSEMENT OF SALARY TO EMPLOYERS WHO SELECT ELIGIBLE HANDICAPPED INDIVIDUALS FOR ON-THE-JOB TRAINING WITH THEIR COMPANY.

INFORMATION REGARDING THESE PROGRAMS CAN BE OBTAINED THROUGH THE STATE DEPARTMENT OF VOCATIONAL REHABILITATION OR JOB SERVICE OFFICE OR THROUGH THE DEPARTMENT OF LABOR.

AN IMPORTANT ITEM TO PROVIDE IN PLACEMENT OF THE HANDICAPPED IS FOLLOW-UP SERVICES TO THE EMPLOYER. MAKE YOURSELF AVAILABLE AS A CONSULTANT IF PROBLEMS OR QUESTIONS ARISE. A FINAL ELEMENT IN PLACEMENT IS TO ENGAGE IN WHAT WE CALL SELECTIVE PLACEMENT. THAT MEANS SELECTING THE JOB SETTING WHICH PROVIDES THE STUDENT WITH THE GREATER CHANCE FOR SUCCESS AND THE EMPLOYER WITH THE GREATER CHANCE FOR SATISFACTION.

FOR INSTANCE, SPEECH IMPAIRED INDIVIDUALS MIGHT BE WELL ADVISED TO AVOID PLACEMENT IN A GENERAL SHOP IF A GREAT DEAL OF COMMUNICATION WITH THE GENERAL PUBLIC IS REQUIRED. INDIVIDUALS WITH ORTHOPEDIC IMPAIRMENT WOULD PROBABLY NEED TO CHECK THE AMOUNT OF LIFTING REQUIRED AT A SPECIFIC COMPANY BEFORE THEY CONSIDER EMPLOYMENT THERE. AMPUTEES WOULD PROBABLY AVOID JOBS IN WHICH CLIMBING WAS REQUIRED SUCH AS WELDING GRAIN ELEVATORS OR IRON WORK ON HIGH RISE BUILDINGS.

FOR THOSE WITH HEARING IMPAIRMENTS, THERE SHOULD BE FEW IF ANY LIMITATIONS IN JOB PLACEMENT. IN FACT, IT MAY BE AN ADVANTAGE IN SOME SETTINGS SUCH AS VERY NOISY SHOPS WHERE GRINDING AND HAMMERING FORCE THE WORKER WITH NORMAL HEARING TO WEAR EAR PLUGS.

THOSE WITH LIMITED VISUAL IMPAIRMENT SHOULD FACE NO SIGNIFICANT LIMITATIONS IN PLACEMENT IF THEY HAVE BEEN ABLE TO SUCCESSFULLY COMPLETE TRAINING.

AGAIN, PLEASE RECALL THAT THESE ARE ONLY SUGGESTIONS TO BE TESTED OUT BY THE EMPLOYER AND THE INDIVIDUAL HANDICAPPED STUDENT. WHEN YOU HAVE THE OPPORTUNITY TO WORK WITH PHYSICALLY HANDICAPPED STUDENTS, YOU WILL FIND THE EXPERIENCE A VERY REWARDING ONE.

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(PRINT DISCLAMOR)

TECHNIQUES FOR TEACHING EDUCATIONALLY DISADVANTAGED STUDENTS IN WELDING

TECHNIQUES FOR TEACHING EDUCATIONALLY DISADVANTAGED STUDENTS IN WELDING

THOUSANDS OF EDUCATIONALLY DISADVANTAGED STUDENTS ENTER SECONDARY AND POST-SECONDARY PROGRAMS EACH YEAR.

THEY LOOK LIKE THE OTHER STUDENTS BUT THEY HAVE, YEAR BY YEAR, FALLEN FURTHER BEHIND IN BASIC SKILLS TAUGHT IN SCHOOL.

ALTHOUGH MUCH ATTENTION HAS BEEN GIVEN TO IMPROVING BASIC SKILLS IN READING AND MATH OF SCHOOL CHILDREN, EACH TEACHER CAN EXPECT TO ENCOUNTER EDUCATIONALLY DISADVANTAGED STUDENTS IN THEIR CLASSES.

THE PROFESSIONAL TEACHER WILL VIEW THESE STUDENTS AS A CHALLENGE BECAUSE A MAJOR FACTOR IN THE PROGRESS OF THESE STUDENTS WILL BE THE SPECIAL TEACHING TECHNIQUES USED TO HELP THEM LEARN.

THE TEACHER'S ATTITUDE ABOUT THE LEARNING DISADVANTAGED STUDENT AND THEIR SKILL IN

PROVIDING SPECIAL HELP IS THE KEY TO OPPORTUNITY FOR THE STUDENT.

STUDENTS SELECT THE VOCATIONAL WELDING PROGRAM AS A SKILL THEY WANT TO LEARN AND IN MOST CASES THEY ENTER THE PROGRAM WITH ENTHUSIASM.

WELDING INSTRUCTORS HAVE FOUND THAT STUDENTS WITH AN EDUCATIONALLY DISADVANTAGED CONDITION IN READING AND/OR MATH ARE COMMON IN MOST VOCATIONAL WELDING PROGRAMS AND THAT THESE STUDENTS CAN LEARN TO WELD WHEN SPECIAL TEACHING TECHNIQUES ARE USED.

IN THIS PRESENTATION WE WILL EXPLORE TEACHING TECHNIQUES APPROPRIATE FOR THE EDUCATIONALLY DISADVANTAGED STUDENT SPECIFICALLY IN READING AND MATH SKILLS.

HELP BEGINS WITH DIAGNOSING THE PROBLEM.

THE ALERT TEACHER WILL SUSPECT THAT THE STUDENT HAS A READING PROBLEM WHEN HE OR SHE DISPLAYS SOME OF THESE CHARACTERISTICS . . .

- UNUSUAL POSTURE WHEN READING OR WRITING
- POOR WRITTEN TEST PERFORMANCE
- SHORT ATTENTION SPAN
- DAY DREAMING
- SPELLING ERRORS
- LOSS OF PLACE ON PAGE
- POOR READING COMPREHENSION

A MATH DEFICIENCY WILL BE RECOGNIZED WHEN THE STUDENT CANNOT COMPUTE SIMPLE MATH PROBLEMS RELATED TO THEIR CLASS WORK.

A MORE COMPLETE LIST OF INDICATORS IS INCLUDED IN THE INSTRUCTOR PACKET.

WHEN EDUCATIONALLY DISADVANTAGED CONDITIONS ARE IDENTIFIED EARLY, SPECIAL TEACHING TECHNIQUES CAN BE STARTED AT THE BEGINNING OF THE CLASS BEFORE THE STUDENT'S KNOWLEDGE ABOUT WELDING TECHNOLOGY LAGS BEHIND THAT REQUIRED FOR SUCCESS.

THE ACTION TO TAKE WHEN AN EDUCATIONALLY DISADVANTAGED CONDITION IS IDENTIFIED IS TO SCHEDULE THE STUDENT FOR TESTING WITH APPROPRIATE SCHOOL PERSONNEL.

TESTING WILL RESULT IN A DIAGNOSIS OF THE PROBLEM. THE STUDENT MAY HAVE DIFFICULTY READING OR THE LEARNING PROBLEM MAY BE A "PERCEPTUAL" HANDICAP.

THE SYMPTOMS IN BOTH CASES WILL BE SIMILAR. HOWEVER, THE SPECIAL NEEDS OF THE STUDENT WILL BE DIFFERENT DEPENDING UPON WHICH SITUATION EXISTS.

A STUDENT WITH A PERCEPTUAL PROBLEM CANNOT BE EXPECTED TO LEARN AT THE SAME RATE OR LEVEL AS A STUDENT WITH NORMAL VISION. SOME PERCEPTUAL PROBLEMS CAN BE CORRECTED WITH MEDICAL CARE WHILE OTHERS MAY PREVENT THE STUDENT FROM LEARNING TO WELD AT ALL.

STUDENTS WITH A READING DISADVANTAGE CAN LEARN TO WELD--THEY CAN SEE WHAT THEY ARE DOING.

THE STUDENT'S READING ABILITY FOR ENTRY-LEVEL EMPLOYMENT IN THE WELDING INDUSTRY SHOULD BE ADEQUATE FOR READING DIRECTIONS, JOB ORDERS, BILL OF MATERIALS, AND WELDMENT PRINTS. A SEVENTH TO NINTH GRADE READING LEVEL WILL BE SUFFICIENT FOR WORK-RELATED READING REQUIREMENTS AT THE ENTRY LEVEL.

ENTRY-LEVEL EMPLOYMENT SKILLS REQUIRED IN MATH INCLUDE BEING ABLE TO USE A TAPE MEASURE, FIGURING SIZE AND SHAPE OF MATERIALS, AND COMPUTING OTHER BASIC MATH PROBLEMS.

IN THE WELDING CLASS STUDENTS WILL NEED TO MASTER RELATED INFORMATION ABOUT WELDING AND AT LEAST PART OF THIS INFORMATION WILL BE PRESENTED IN PRINTED FORM.

THE CHALLENGING PART ABOUT DEALING WITH THE EDUCATIONALLY DISADVANTAGED STUDENT BEGINS WHEN THE INSTRUCTOR DEVELOPS A PLAN TO PERMIT THE STUDENT TO LEARN BY VARYING THE TEACHING TECHNIQUES NORMALLY USED AND IMPLEMENTS THE PLAN.

STUDENTS WHO DO NOT READ WELL OR CANNOT COMPUTE MATHEMATICAL PROBLEMS ARE GENERALLY AWARE OF THEIR PROBLEM BUT MAY NOT REALIZE THE IMPORTANCE OF READING AND MATH SKILLS IN WELDING OCCUPATIONS.

COMMUNICATIONS ABOUT THE CLASS AND JOB REQUIREMENTS AS WELL AS THE SPECIAL TECHNIQUES TO BE USED TO TEACH THE STUDENT SHOULD BEGIN IMMEDIATELY BETWEEN THE INSTRUCTOR, STUDENT, PARENTS, AND SPECIAL NEEDS TEACHERS WHO WILL BE INVOLVED.

BY LETTING THE STUDENT AND PARENTS KNOW THAT YOU AND OTHER SCHOOL PERSONNEL ARE WILLING TO HELP IMPROVE THE STUDENT'S READING LEVEL AND MAKE SPECIAL ARRANGEMENTS FOR THEM TO LEARN, YOU HAVE STARTED WITH A POSITIVE APPROACH TO LEARNING.

ALTHOUGH SCHOOL PERSONNEL AND THE PARENTS MAY BE EAGER TO HELP TEACH THE STUDENT NOW, BRINGING THEIR READING TO THE SEVENTH TO NINTH GRADE LEVEL WILL NOT BE ACCOMPLISHED IN A FEW DAYS OR WEEKS.

FOR EXAMPLE, THE READING LEVEL OF THE STUDENT MAY BE SO LOW THAT HE OR SHE WILL NOT BE ABLE TO COMPREHEND THE TEXTBOOK MATERIAL AT ALL.

THEREFORE, TO PREPARE THE STUDENT FOR A WELDING CAREER, THE TEACHER MUST ACCEPT THE PERSON WHERE HE OR SHE IS AND USE SPECIAL TEACHING TECHNIQUES TO MAKE CERTAIN THE STUDENT UNDERSTANDS THE INFORMATION REQUIRED TO BECOME A PROFICIENT WELDER.

SOME SUGGESTIONS FOR PROVIDING SPECIAL HELP FOR THE EDUCATIONALLY DISADVANTAGED STUDENT INCLUDE:

FIRST, ONE-TO-ONE INSTRUCTION WILL BE REQUIRED. WHEN THE TEACHER OR TEACHER ASSISTANT CANNOT GIVE ENOUGH INDIVIDUAL HELP, OTHER RESOURCE PEOPLE NEED TO BE USED.

A STUDENT CAN BE THE RESOURCE PERSON. A STUDENT WHO IS DOING WELL IN THE CLASS AND WHO IS WILLING TO HELP THE DISADVANTAGED STUDENT CAN INCREASE THE AMOUNT OF SPECIAL HELP AVAILABLE TO THE STUDENT.

THE DISADVANTAGED STUDENT WILL GENERALLY LEARN WELL FROM THE EXPERIENCED STUDENT BECAUSE THIS STUDENT WILL BE HELPING ONLY ONE PERSON; THE TEACHER IS RESPONSIBLE FOR THE NEEDS OF THE ENTIRE CLASS.

SECOND, WHEN YOUR SCHOOL HAS A SPECIAL NEED TEACHER, REFER THE EDUCATIONALLY DISADVANTAGED STUDENT TO THIS PERSON FOR HELP.

THE SPECIAL NEED TEACHER CAN WORK WITH THE EDUCATIONALLY DISADVANTAGED STUDENT TO PROVIDE HELP IN SUCH AREAS AS WELDING VOCABULARY AND COMPUTATIONAL SKILLS NEEDED TO BE SUCCESSFUL IN CLASS.

THIS PERSON IS ANOTHER SOURCE OF INDIVIDUALIZED TUTORING FOR THE STUDENT.

THIRD, INDIVIDUALIZED INSTRUCTIONAL MATERIALS WHICH PRESENT INFORMATION IN A VISUAL AND AUDIO FORMAT WILL BE IDEAL FOR TEACHING THE EDUCATIONALLY DISADVANTAGED STUDENT.

SLIDE-TAPE PROGRAMS, FOR EXAMPLE, PRESENT THE INFORMATION IN BOTH VISUAL AND AUDIO FORM AND PERMIT MAXIMUM FLEXIBILITY FOR USE.

STUDENTS MAY VIEW THE PROGRAMS INDIVIDUALLY OR IN GROUPS, ONCE OR REPEATEDLY UNTIL THEY UNDERSTAND THE INFORMATION PRESENTED. USE OF MEDIATED INDIVIDUALIZED INSTRUCTIONAL MODULES HAS BEEN EXTREMELY SUCCESSFUL WITH EDUCATIONALLY DISADVANTAGED STUDENTS.

A RESOURCE LIST OF MATERIALS AVAILABLE IS PROVIDED IN THE INSTRUCTOR PACKET.

FOURTH, WHEN MEDIATED INSTRUCTIONAL MATERIALS ARE NOT AVAILABLE IN YOUR SCHOOL AND FUNDS ARE NOT AVAILABLE TO PURCHASE THEM, JOB SHEETS OR SIMPLE INSTRUCTION SHEETS WITH ILLUSTRATIONS SHOWING THE STEPS TO FOLLOW IN COMPLETING AN ASSIGNMENT MAY BE PREPARED AND USED.

TEXTBOOK ASSIGNMENTS CAN BE READ ONTO TAPE SO THE STUDENT CAN LISTEN AS HE OR SHE TRIES TO READ THE TEXT MATERIAL.

FIFTH, THE READING LEVEL OF TEXTBOOKS AND OTHER INSTRUCTIONAL MATERIALS SHOULD BE EVALUATED PRIOR TO PURCHASE.

TEXTBOOK EVALUATION SYSTEMS ARE AVAILABLE AND EXAMPLES ARE PROVIDED IN THE INSTRUCTOR PACKET. TEACHERS SHOULD SERIOUSLY CONSIDER THE READING DISADVANTAGED STUDENT IN TEXTBOOK SELECTION.

THE TEXT IS AN ADDITIONAL SOURCE OF INFORMATION ABOUT WELDING PROCEDURES THAT THE EDUCATIONALLY DISADVANTAGED STUDENT CAN LEARN FROM IF THE READING LEVEL IS WITHIN HIS OR HER GRASP.

SIXTH, EDUCATIONALLY DISADVANTAGED STUDENTS WILL NOT DO WELL ON WRITTEN TESTS.

THEREFORE, THE TEACHER SHOULD DEVISE A TESTING METHOD THAT WILL ALLOW THESE STUDENTS TO DEMONSTRATE OR PERFORM WHAT THEY HAVE LEARNED.

WRITTEN TEST RESULTS FOR THESE STUDENTS WILL NOT GIVE A FAIR ASSESSMENT OF THEIR KNOWLEDGE ABOUT WELDING.

BY USING SOME OF THE SPECIAL TECHNIQUES SUGGESTED, THE EDUCATIONALLY DISADVANTAGED STUDENT CAN BECOME A PROFICIENT WELDER AND SECURE EMPLOYMENT IN THIS OCCUPATION.

IN A LEARNING SITUATION SUCH AS CAN BE PROVIDED IN THE VOCATIONAL WELDING PROGRAM, THE EDUCATIONALLY DISADVANTAGED STUDENT CAN EXCEL.

THE REWARD FOR THE INSTRUCTOR WILL BE IN THE SUCCESS OF THEIR STUDENTS.

THE EXTRA WORK REQUIRED TO PROVIDE FOR THESE STUDENTS WILL CERTAINLY BE WORTH THE EFFORT.

THIS PRESENTATION WAS WRITTEN BY:
DAVID ADAMS
LEX-LA-RAY AREA VOCATIONAL TECHNICAL SCHOOL
AND PRODUCED BY:
GARY TIPTON
FOR THE MEDIA CENTER, STATE FAIR COMMUNITY COLLEGE.
THIS PRESENTATION WAS FUNDED BY THE RESEARCH COORDINATING UNIT, DEPARTMENT OF ELEMENTARY AND SECONDARY EDUCATION, JEFFERSON CITY, MISSOURI.

(PRINT DISCLAMOR)

APPENDIX C

SUMMARY OF STUDENT EVALUATIONS

RESULTS OF STUDENT EVALUATION OF THE LEARNING MODULES

	MODULE NO.						
	101	102	103	104	105	106	107
1. The introduction indicated to me why this module was important and how it related to previous modules.	A	A	A	A	A	A	A
2. I understood each of the module objectives before I began completing the module.	A	A	A	A	A	A	A
3. I felt that the objectives were important.	A	A	A	A	A	A	A
4. The objectives indicated what I was to achieve, how I was to achieve and what was acceptable achievement.	A	SA	A	A	A	U	A
5. The procedures indicated the steps I was to follow in completing the module. I knew what I was to do.	A	A	A	A	A	A	A
6. The procedures indicated options that were available to me.	A	A	A	A	A	A	A
7. Information sheets provided me with all the information needed to complete the module.	NA	NA	A	A	A	NA	A
8. The information sheets were written so they were easy to understand and follow.	NA	NA	A	A	A	NA	A
9. The illustrations accompanying the information sheets were helpful in clarifying the information.	NA	NA	A	A	A	NA	A
10. The learning activities were clear and assisted me in achieving the objectives.	A	A	A	A	A	A	A
11. The learning activities were boring.	D	SD	D	U	D	U	D
12. Opportunities to apply or practice what I learned were provided.	SA	A	A	A	A	A	A
13. I was aware of my progress as I proceeded through the module.	SA	A	A	A	A	A	A

	MODULE NO.						
	101	102	103	104	105	106	107
14. I felt the tests measured my achievement of the objectives.	A	A	A	A	A	A	A
15. The tests contained clear directions; I knew how I was to respond to each item.	A	A	A	A	U	A	A
16. The checkpoints, checklists, and/or self-tests helped me determine if I was ready for the tests.	A	A	A	A	U	A	A
17. The media presentation moved too fast for me to learn the materials.	D	D	D	U	D	D	D
18. The media presentation was too long.	D	D	D	D	D	D	D
19. The picture quality was not good.	A	A	A	A	A	A	A
20. The sound quality was not good.	A	A	A	A	A	A	A
21. The picture matched the sound content.	A	A	A	A	A	A	A
22. The media presentation followed a logical order.	A	A	A	A	A	A	A
23. The media equipment was easy to use.	SD	SD	A	A	A	D	A
24. The media equipment was easy to use.	A	A	A	A	A	A	A
25. The media equipment was available when needed.	A	A	A	A	A	A	A
26. The media presentation helped me understand the content.	A	A	A	A	A	A	A
27. The media presentation was interesting to me.	A	A	A	A	A	A	A
28. New words were defined throughout the module.	A	A	A	U	U	U	A
29. I would prefer this approach to learning be used more frequently.	SA	SA	A	A	SA	SA	A
30. The instructor was available for assistance when needed.	SA	SA	A	A	A	A	A

RESULTS OF STUDENT EVALUATION OF THE LEARNING MODULES

	MODULE NO.					
	108	109	110	111	112	113
1. The introduction indicated to me why this module was important and how it related to previous modules.	A	A	A	A	A	A
2. I understood each of the module objectives before I began completing the module.	A	A	A	A	A	A
3. I felt that the objectives were important.	A	A	A	A	A	A
4. The objectives indicated what I was to achieve, how I was to achieve and what was acceptable achievement.	A	U	A	A	A	A
5. The procedures indicated the steps I was to follow in completing the module. I knew what I was to do.	A	A	A	A	A	A
6. The procedures indicated options that were available to me.	A	A	A	A	A	A
7. Information sheets provided me with all the information needed to complete the module.	NA	NA	A	A	A	A
8. The information sheets were written so they were easy to understand and follow.	NA	NA	A	A	A	A
9. The illustrations accompanying the information sheets were helpful in clarifying the information.	NA	NA	A	A	A	A
10. The learning activities were clear and assisted me in achieving the objectives.	A	A	A	A	A	A
11. The learning activities were boring.	D	D	SD	SD	D	D
12. Opportunities to apply or practice what I learned were provided.	A	SA	A	SA	A	A
13. I was aware of my progress as I proceeded through the module.	A	A	A	SA	A	A

		MODULE NO.					
		108	109	110	111	112	113
14.	I felt the tests measured my achievement of the objectives.	A	A	A	A	A	A
15.	The tests contained clear directions; I knew how I was to respond to each item.	A	A	A	A	A	A
16.	The checkpoints, checklists, and/or self-tests helped me determine if I was ready for the tests.	A	A	A	A	A	A
17.	The media presentation moved too fast for me to learn the materials.	D	D	D	D	D	D
18.	The media presentation was too long.	D	D	D	D	D	D
19.	The picture quality was not good.	A	A	A	A	A	A
20.	The sound quality was not good.	A	A	A	A	A	A
21.	The picture matched the sound content.	A	A	A	A	A	A
22.	The media presentation followed a logical order.	A	A	A	A	A	A
23.	The media equipment was easy to use.	A	SD	A	A	A	U
24.	The media equipment was easy to use.	A	A	A	A	A	U
25.	The media equipment was available when needed.	A	A	A	A	A	A
26.	The media presentation helped me understand the content.	A	A	A	A	A	A
27.	The media presentation was interesting to me.	A	A	A	A	A	A
28.	New words were defined throughout the module.	U	A	U	U	A	U
29.	I would prefer this approach to learning be used more frequently.	SA	SA	A	A	A	A
30.	The instructor was available for assistance when needed.	A	SA	A	A	A	SA

APPENDIX D

FORMS USED IN PROJECT

TEACHER EVALUATION OF THE LEARNING MODULE

Module Title _____ Number _____

Instructor's Name _____ Date Evaluated _____

Instructor's Institution _____

INSTRUCTIONS: Please read each of the following questions. Check either Yes, No, or Not Applicable in response to each question.

Your carefully considered responses will definitely be used in the revision of this module!

NOTE: If you answer No, please explain below the item or on the back in more detail.

* *

	YES	NO	NA
1. Is the introduction interesting and motivating?	____	____	____
2. Are the objectives representative of the needs of the occupational area, including technical and related information, manipulative skills, and social and attitudinal traits.	____	____	____
3. Which, if any, of the objectives should be deleted? _____ _____			
4. From your experience, what, if any, objectives should be added? _____ _____			
5. Are the procedures complete and clearly stated?	____	____	____
6. Do the information sheets and media narrative contain up-to-date and accurate information?	____	____	____
7. Does the module information pages and the media script follow a logical and smooth flowing order?	____	____	____
8. Are information sheets written on the learner's comprehension level?	____	____	____
9. Do illustrations help explain written information?	____	____	____
10. Do the learning activities lead to the attainment of the competencies stated in the objectives?	____	____	____
11. Are alternative and/or supplemental activities provided to account for student differences?	____	____	____
12. Do the learning activities clarify what the student is to do, how they are to complete the activity, and why it is necessary?	____	____	____
13. What activities should be changed or dropped? _____ _____			

	YES	NO	NA
14. What activities have you used which should be added to this module (attach separate pages if needed)?			
15. Are opportunities for practice provided where proficiency is required?	____	____	____
16. Do checklists and self-checks assess the learner's progress toward the objectives and provide feedback for learner reinforcement?	____	____	____
17. Are evaluation procedures written to measure the cognitive, affective, and psychomotor achievements of objectives?	____	____	____
18. Are test items worded simply and clearly?	____	____	____
19. Does the media presentation attract and maintain the student's attention?	____	____	____
20. Is the speed of the presentation compatible with the student's learning speed?	____	____	____
21. Is the length of the media presentation realistic?	____	____	____
22. Are new words defined and used consistently throughout the module?	____	____	____
23. Is the module internally consistent so that the objectives, activities, and evaluation techniques do not conflict?	____	____	____
24. Are safety precautions and instructions provided?	____	____	____
25. Is the module free of bias (age, sex, race, etc.)?	____	____	____
26. Is the time required to manage and utilize the module reasonable?	____	____	____

TEACHER'S GUIDE

27. Are several alternative teaching methods or techniques suggested?	____	____	____
28. Are appropriate demonstrations recommended?	____	____	____
29. Do special shop, lab, or classroom arrangements improve the use of the module?	____	____	____
30. Are student activities described?	____	____	____

31. What additional references or instructional materials have you used in teaching the objectives of this module?

Type	Publisher

STUDENT EVALUATION OF THE LEARNING MODULE

COURSE: _____

MODULE TITLE: _____ NUMBER: _____

INSTRUCTOR: _____

DATE: _____

SCHOOL: _____

TIME SPENT ON MODULE: _____

ATTEMPTED PRETEST _____ YES _____ NO

PASSED PRETEST _____ YES _____ NO

PASSED POSTTEST ON FIRST ATTEMPT _____ YES _____ NO

INSTRUCTIONS: Please read each of the following statements. Circle the symbol on the right of each statement that most nearly represents your opinion of this module. The symbols are defined as follows:

SA	A	U	D	SD	NA
Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Not Applicable

Your carefully considered responses will definitely be used in the revision of this module!

INTRODUCTION

1. The introduction indicated to me why this module was important and how it related to previous modules.	SA	A	U	D	SD	NA

OBJECTIVES

2. I understood each of the module objectives before I began completing the module.	SA	A	U	D	SD	NA
3. I felt that the objectives were important.	SA	A	U	D	SD	NA
4. The objectives indicated what I was to achieve, how I was to achieve and what was acceptable achievement.	SA	A	U	D	SD	NA

PROCEDURES

5. The procedures indicated the steps I was to follow in completing the module. I knew what I was to do.	SA	A	U	D	SD	NA
6. The procedures indicated options that were available to me.	SA	A	U	D	SD	NA

INFORMATION SHEETS

7. Information sheets provided me with all the information needed to complete the module.	SA	A	U	D	SD	NA
8. The information sheets were written so they were easy to understand and follow.	SA	A	U	D	SD	NA
9. The illustrations accompanying the information sheets were helpful in clarifying the information.	SA	A	U	D	SD	NA

LEARNING ACTIVITIES

10. The learning activities were clear and assisted me in achieving the objectives.	SA	A	U	D	SD	NA
11. The learning activities were boring.	SA	A	U	D	SD	NA
12. Opportunities to apply or practice what I learned were provided.	SA	A	U	D	SD	NA

EVALUATION

13. I was aware of my progress as I proceeded through the module.	SA	A	U	D	SD	NA
14. I felt the tests measured my achievement of the objectives.	SA	A	U	D	SD	NA

15.	The tests contained clear directions; I knew how I was to respond to each item.	SA	A	U	D	SD	NA
16.	The checkpoints, checklists, and/or self-tests helped me determine if I was ready for the tests.	SA	A	U	D	SD	NA
	MEDIA						
17.	The media presentation moved too fast for me to learn the materials.	SA	A	U	D	SD	NA
18.	The media presentation was too long.	SA	A	U	D	SD	NA
19.	The picture quality was good.	SA	A	U	D	SD	NA
20.	The sound quality was good.	SA	A	U	D	SD	NA
21.	The picture matched the sound content.	SA	A	U	D	SD	NA
22.	The media presentation followed a logical order.	SA	A	U	D	SD	NA
23.	The media equipment operated properly.	SA	A	U	D	SD	NA
24.	The media equipment was easy to use.	SA	A	U	D	SD	NA
25.	The media equipment was available when needed.	SA	A	U	D	SD	NA
26.	The media presentation helped me understand the content.	SA	A	U	D	SD	NA
27.	The media presentation was interesting to me.	SA	A	U	D	SD	NA
	OVERALL						
28.	New words were defined throughout the module.	SA	A	U	D	SD	NA
29.	I would prefer this approach to learning be used more frequently.	SA	A	U	D	SD	NA
30.	The instructor was available for assistance when needed.	SA	A	U	D	SD	NA

31. The things I liked best about this module were: _____

_____

_____

32. The things I liked least about this module were: _____

_____

_____

COMPETENCY RECORD

INSTRUCTOR _____

INSTITUTION _____

COMPETENCIES	COMPETENCY IS ESSENTIAL TO PROGRAM	ALL STUDENTS MET COMPETENCY EASILY	MOST STUDENTS MET COMPETENCY EASILY	MANY STUDENTS HAD TROUBLE WITH COMPETENCY	SOME STUDENTS COULD NOT MASTER COMPETENCY	INFORMATION RELATED TO COMPETENCY ADEQUATE	ACTIVITIES RELATED TO COMPETENCY ADEQUATE	COMMENTS

STUDENT RECORD

STUDENTS NAME _____ INSTITUTION _____

SEMESTER _____ INSTRUCTOR _____

MODULE NUMBER	BRIEF TITLE	PASSED PRE-TEST	DATE STARTED	ACTIVITIES COMPLETED	WRITTEN EVALUATION	PERFORMANCE EVALUATION	DATE COMPLETED	COMMENTS
5101	SAMPLE	9/10	9/15	9/20	FAIR	GOOD	9/22	
73								74

RATING FORM

1. POOR — The student was unable to complete the objectives
2. FAIR — The student is able to just barely complete the objectives
3. GOOD — The student is able to complete the objectives in an effective manner
4. EXCELLENT — The student is able to complete the objectives in a very effective manner.

COMPETENCY REVIEW FORM

INSTRUCTOR: _____

INSTITUTION: _____

COMPETENCIES FOR MODULE 101 Welding Shop Safety	Competency is Essential to Program	All Students Met Competency Easily	Most Students Met Competency Easily	Many Students had Trouble but Met Competency	Many Students Could not Master Competency	Information Related to Competency Adequate	Information Related to Competency Inadequate	Comments
1 Safely operate supportive tools and machines that are used in the welding shop.								
2 Properly lift and move heavy materials used in the welding shop.								
3 Help in maintaining the shop, making it a clean, safe place to work.								

Module No. _____

MODULE SUMMARY SHEET

MODULE TITLE _____

Objectives students had trouble meeting _____

_____

_____

_____

Additional Objectives needed in Module _____

_____

_____

_____

Module activities useful with special needs students _____

_____

_____

_____

Additional learning activities developed for students with special needs and varying abilities (attach separate pages if needed). _____

_____

_____

_____

_____

References and Instructional Materials available for use with module.

Type of Materials	Publisher
_____	_____
_____	_____
_____	_____

Student _____

STUDENT PROGRESS REPORT

Module _____ Date Started _____ Date Completed _____

Passed Pre-test _____

Completed Activities _____

Written Test Score _____

Performance Test Score _____

Module _____ Date Started _____ Date Completed _____

Passed Pre-test _____

Completed Activities _____

Written Test Score _____

Performance Test Score _____

Module _____ Date Started _____ Date Completed _____

Passed Pre-Test _____

Completed Activities _____

Written Test Score _____

Performance Test Score _____

Module _____ Date Started _____ Date Completed _____

Passed Pre-Test _____

Completed Activities _____

Written Test Score _____

Performance Test Score _____

Module _____ Date Started _____ Date Completed _____

Passed Pre-Test _____

Completed Activities _____

Written Test Score _____

Performance Test Score _____

APPENDIX E

ADVISORY COMMITTEE

*MEMBERS

*AGENDAS

*NOTES

ADVISORY COMMITTEE MEMBERS

Welding Instructors

MR DAVID ADAMS
LEX-LA-RAY AREA VOCATIONAL SCHOOL
100 S 13
LEXINGTON MO 64067

MR CHARLES BRIGGS
MOBERLY AREA VOCATIONAL SCHOOL
URBANDALE DR
MOBERLY MO 65270

MR CHARLES McCORD
LEAD BELT AREA VOCATIONAL-TECHNICAL SCHOOL
301 N CLARK
CAPE GIRARDEAU MO 63701

MR CHARLES CREST
SIKESTON AREA VOCATIONAL SCHOOL
200 PINE ST
SIKESTON MO 63801

MR GERALD EVANS
STATE FAIR AREA VOCATIONAL SCHOOL
1900 CLARENDON RD
SEDALIA MO 65301

MR JAROLD WELCH
STATE FAIR AREA VOCATIONAL SCHOOL
1900 CLARENDON RD
SEDALIA MO 65301

Counselors

MR CHARLEY HOUSEWORTH
LEX-LA-RAY AREA VOCATIONAL SCHOOL

MRS ELNORA KOMAR
MOBERLY AREA VOCATIONAL SCHOOL

MISS GAY GROVES
STATE FAIR COMMUNITY COLLEGE

MS RHONDA FARIS
STATE FAIR AREA VOCATIONAL SCHOOL

DESE Staff

MS KAY DAMERON
SUPERVISOR
RESEARCH COORDINATING UNIT

MR BOB ROBINSON
DIRECTOR
TRADE & TECHNICAL DIVISION

MR MILES BEACHBOARD
DIRECTOR
DISADVANTAGED & HANDICAPPED DIVISION

MR DICK OMER
SUPERVISOR
DISADVANTAGED & HANDICAPPED DIVISION

Industry Representatives

MR RAY PETERSON
PARKHURST MANUFACTURING

MR FRED PETERS
WHITEMAN AIR FORCE BASE

MR DON FEHR
WESTINGHOUSE ELECTRIC

MR GENE MING
MO OX

Media Center Staff

MRS SHIRLEY EVANS and MR ROBERT SCHWINDT (Directors)

MR RICK LIST (Media Specialist)

MR GARY TIPTON (Media Specialist)

AGENDA

Advisory Committee Meeting

A Competency-Based Approach for Teaching Welding

TUESDAY, AUGUST 21

6:00 p.m. Dinner, Ramada Inn in Jefferson City

7:00 p.m. Introduction and Explanation of Project - Robert Schwindt, SFCC Media Center, Director

7:15 p.m. Preview of Instructional Module

7:30 p.m. Review of Student Competencies for Welding Programs- Gerald Evans, Welding Curriculum Specialist and SFCC Technical Department Chairman

WEDNESDAY, AUGUST 22

8:30 Breakfast

8:45 Competency Based Instruction for Vocational Education

9:15 Selection of Instructional Materials
Sequencing of Learning Modules

10:45 Characteristics of Special Needs Students as Related to Welding Programs Ms. Gay Groves, SFCC Special Vocational Counselor

11:15 Plans for Record Keeping, Evaluation Procedures, and Technical Assistance in Implementing Competency-Based Instruction in the Welding Programs

11:30 Lunch and Adjournment

I. Introduction of Guests

R.S. - Miles Beachboard - Director of Programs for the Disadvantaged and Handicapped
Bob Robison - Director of Technical and Industrial Education
Allen Kelsay - Assistant Director of the Research Coordinating Unit
Charlie Cogar - State Fair Community College Media Coordinator
Gary Tipton - State Fair Community College Media Specialist
Jarold Welch - State Fair Community College Welding Instructor
David Adams - Welding Instructor - Lex La-Ray
Charles McCord - Welding Instructor Lead Belt
Charles Briggs - Welding Instructor - Moberly
Jerry Evans - State Fair Community College Technical Department Chairman
Ray Peterson - Parkhurst Manufacturing
Fred Peters - Whiteman Air Force Base
Don Fehr - Westinghouse Electric
Gene Main - Mo-Ox
Elnora Komar - Counselor, Moberly Area Vocational School

II. Background on Project
A. Request for proposal from Research Coordinating Unit
B. Wrote proposal according to Guidelines

PROJECT GOAL: To provide an exemplary program at the secondary level to demonstrate competency-based instruction for special needs students and other students with varying abilities in a welding class.

EXPECTED OUTCOMES:
- to develop a teaching guide for use by secondary welding instructors in the teaching of special needs students and other students with varying abilities

- to develop mediated materials for use by school districts, administrators and teachers in understanding competency-based instructional materials and techniques.

- to develop a handbook suitable for use by counselors and teachers in placing students in proper welding curriculum sequence

- to demonstrate to vocational educators the tools and techniques in reaching students with various abilities

III. Explanation of Projects
A. Objectives of project:
1. To select or develop a slide program on the advantages and characteristics of competency-based vocational instruction for school districts, adminstrators, and instructors.
2. To select or develop a slide program on the procedures in implementing competency-based education for vocational tec-nical instructors.
3. To develop and test a teaching guide and related competency-based welding curriculum for use with students with special needs and varying abilities.

4. To develop a handbook for use by welding instructors and counselors in placing students in the proper welding sequences.
5. To develop three videotapes demonstrating to other vocational educators, techniques for teaching students with special needs and varying abilities.

B. Participating Institutions
   1. Lead Belt
   2. Lex La-Ray
   3. Moberly
   4. Sikeston
   5. Cape Girardeau

IV. Project Design
   A. Phase I
      1. Slide program developed on characteristics and advantages of CBI
      2. Advisory committee meeting in August
         a. Review of competencies
         b. Placing competencies in prerequisite order
         c. Review of instructional materials
         d. Selection of twenty modules to be used
         e. Characteristics of special needs students
         f. Evaluation procedures

   B. Phase II
      1. Implementation of modules
         a. Duplication and distribution
         b. Technical assistance
         c. Evaluation of modules
      2. Collection of information
         a. Identification of special needs students
         b. Progress in meeting competencies
         c. Learning activities used in mastering competencies
      3. Development of slide program on implementing a CBI program

   C. Phase III
      1. Advisory committee meeting in January
         a. Review of field testing of module
         b. Review of course pre-test items
         c. Identification of testing procedures useful in selecting students into welding program
         d. Identification of competencies required for various levels of welding jobs
         e. Review of instructional activities and techniques - selection for videotapes
      2. Development of teaching guide
         a. Course outline
         b. Welding references and instructional materials
         c. Supplemental learning activities and instructional techniques

3. Development of Handbook
   a. Pre-test to assess student skills
   b. Listing of jobs with minimum entry skills
   c. Pre-entry test to identify students with special needs
4. Development of three videotapes
   a. Identify three techniques for teaching students with special needs and varying abilities
   b. Selection of script writers
   c. Development of script and videotapes
5. Final advisory committee in June
   a. Review of handbook
   b. Review of teacher's guide
   c. Review of videotapes

D. Activities of Project Participants
1. Instructors
   a. Select and field test modules
   b. Collect data
   c. Summarize learning activities - contract services
   d. Develop videotape scripts - contract services
2. Counselors
   a. Assist in identification of special needs students
   b. Identify testing procedures for welding programs
   c. Develop videotape script - contract services
3. Welding industry representatives
   a. Review of competencies
   b. Identification of minimum entry competencies for welding job levels.

A G E N D A

COMPETENCY-BASED WELDING PROJECT
State Fair Community College

January 28-29, 1980

Monday, January 28 — Library Conference Room

1:00 p.m. — WELCOME & ANNOUNCEMENTS — Shirley Evans

PROJECT UP-DATE

DISCUSSION TOPICS — Advisory Committee

1. Testing procedures for predicting probability of success in welding of a prospective student.
   a. Interest
   b. Manual dexterity
   c. Other

2. Competencies required for entry-level welding employment.
   a. Entry job titles
      (1) Semi-skilled
      (2) Skilled
      (3) Journeyman
      (4) Other
   b. Competencies required of entry-level employees in each job category

3. What teaching techniques work best with special needs students?
   a. Instructor's point of view
   b. Counselor's point of view

4. Topics for videotape presentations
   a. Techniques--educational handicap
   b. Techniques--physical handicap
   c. Techniques--learning handicap

5. What type of presentation in the videotape format would be most effective for instructors?

6. Who is interested in assisting with development of these?

7. Date for next advisory meeting in June.

8. Review of script for "Competency Based Education Procedures for Implementation."

6:00 p.m.	DINNER Old Missouri Homestead	
Tuesday, January 29		Ramada Inn
7:45 a.m.	BREAKFAST Ramada Inn Dining Room	
8:45 a.m.	Room 201 (Off west side of lobby)	
	DISCUSSION TOPICS	Advisory Committee
	1. Development of pre-test for advanced placement of students in the welding program.	
	2. Review of instructor and student evaluations of welding modules	
	3. Discussion of problems encountered with modules or collection of data.	
	4. Assignments for development of supplemental learning activities and instructional techniques for modules. (Contracts)	
	EXPENSE ACCOUNTS	
12:00 noon	ADJOURN	

N O T E S

COMPETENCY-BASED WELDING PROJECT
ADVISORY COMMITTEE MEETING

January 28-29, 1980

Advisory committee members present were: David Adams, Charles Briggs, Charles McCord, Mike Klepfel, Gerald Evans, Jarold Welch, Charley Houseworth, Elnora Komar, Gay Groves, Robert Schwindt, Rhonda Faris, and Fred Peters. Kay Dameron, Research Coordinating Unit, and Shirley Evans were also present. Members absent included: Charles Crest (recovering from surgery), Jay Parker, Ralph Ford, Gene Ming, and Ray Petersen.

Mrs. Shirley Evans, Project Director, reviewed project accomplishments and reported that it is on schedule.

Discussion Topic 1: Testing procedures for predicting probability of success in welding of a prospective student. Gay Groves (SFCC) reported that she had found little correlation between success in welding and test scores. The best indicator of success is the teacher evaluation after having watched the student weld during a trial period. She is going to try the "Vocational Evaluation Center" and has hopes for success with it.

Elnora Komar (Moberly) is trying to set up criteria for entrance into vocational programs. She has used ASVAB and SDS tests but her plan is in the development stage. She also expects positive results from the "Evaluation Center."

Charles Houseworth (Lexington) said they did not have enough prospective students to conduct a sophisticated selection procedure. Sending school counselors make the decisions about who to send to welding. A recruiting program is conducted including instructor presentations, counselor presentations, and program tours. Some of the sending schools use a panel of industrial arts instructors to assist with selection; however, there is little correlation between grades in industrial arts and success in the welding program.

Charles Briggs (Moberly) said he felt students needed to know what they are signing up for before they enter the welding program.

Rhonda Faris (SFAVTS) reported that the sending school counselors make the decision about who to send to welding. Criteria used included attendance, grades in industrial arts classes, recommendations from industrial arts

instructors, and expressed interest. Orientation programs are given in sending schools to recruit students and a "buddy visitation" system is used for prospective students to explore the AVTS programs.

David Adams (Lexington) said he did not like taking the advice of the high school teachers about whether to let a student enter the program because welding class is quite different from the industrial arts class and students with "F" grades in industrial arts frequently succeed in welding. He has his advisory committee members talk with students each quarter as part of their evaluation.

Gerald Evans (SFAVTS) indicated that hand-eye coordination is important for success in welding. He recommends a trial session for prospective students and feels not knowing the student's past record may be best since knowledge of past record may mean expecting less of the student than he/she is capable of.

Charles McCord (Bonne Terre) conducts a two-week orientation for tenth grade students which includes hands-on experience at welding. The sending school counselors decide who will come into the program.

Mike Klepfel (Cape Girardeau) said many of his students have reading and basic math deficiencies. Other instructors indicated they have the same problem.

Discussion on Topic 1 could be summarized as follows:

1. Interest is important
2. A hands-on trial period is a good success predictor.
3. Test scores in reading and math would be helpful but a student should not be kept out of the program because of low scores.
4. Eye-hand coordination is necessary.
5. Little correlation with high school grades and success in welding.

Discussion Topic 2: Competencies required for entry-level welding employment. The lowest level of welding a student could enter is that of production welder on the MIG or Metal Arc machine. At this level an entry-level welder would need to know safety procedures, be able to strike an arc and run a continuous bead in the flat position, and fuse metal.

The next higher level of production welder would also need to know how to run a continuous bead in the vertical, horizontal, and overhead position, understand prints, cut and gouge steel, use the grinder, set polarity, and select electrodes.

Charles McCord suggested that the competencies required for various levels of welding jobs could be found in the Dictionary of Occupational Titles. To save time, the Director will gather information from that source and mail results to advisory committee members for comments.

Discussion Topic 3: What teaching techniques work best with special needs students? Charles McCord (Lead Belt) felt that the teacher should find the interests of the student and then tell the student how welding fits into his/her interest. Students need an initial demonstration of proper use of equipment from the instructor.

Charles Briggs (Moberly) puts new students or special needs with senior or advanced students. He calls this "responsibility forum" and students start out as helpers to the advanced students. The advanced student rotates the newer or special needs students on jobs as he/she supervises them.

David Adams (Lexington) picks sharp, responsible students who want to help as tutors for special needs students. Some students will have prior welding instruction or experience and can serve as tutors. Many students do not read well and the slide-tape presentations help them learn. The school has a special teacher who works with students in reading and math skills one hour a week. He spends one-on-one time with students who have reading problems and also has students help one another.

Charles Briggs (Moberly) reported that there are too many objectives covered in each module for his students to grasp. He felt no more than five objectives should be covered at one time. The presentations can be used as they are if teachers will break them into smaller units.

David Adams (Lexington) has students look through the entire presentation for an overview, then study it in parts and take the test over each part before taking the test over the entire module.

Gerald Evans (SFAVTS) uses progress charts successfully although he cautioned that care must be taken not to hurt the image of the slow student.

Rhonda Faris (SFAVTS) feels that intensive one-on-one, positive feedback from the instructor makes students feel important and is a key to success in welding.

Gay Groves (SFCC) lists positive feedback as an important factor because special needs students have a mind set on past failures. They need constant gratification early-on--they cannot wait until mid-semester for success. The instruction needs to be broken down into small parts to provide opportunities for positive feedback often.

Gerald Evans (SFAVTS) said that in their special needs program he found that when the counselor and instructor work closely together the students benefit.

Charles Briggs (Moberly) said that teachers must tell students that counselors are "OK" and encourage them to take problems to the counselor.

Gay Groves (SFCC) encouraged instructors to pick up on little problems fast before little problems become big ones.

Elnora Komar (Moberly) felt repetition was an important part of teaching special needs students.

David Adams (Lexington) said he did not give many objective tests. He asks oral questions and has students explain what they are doing. They need to be able to explain the process rather than pass a written test. Many students are poor readers.

Most instructors used performance testing. Some had prepared sample welds so students could see how close their work compared to the sample before having the teacher evaluate their work.

Fred Peters (SFCC) felt one-on-one instruction provides the opportunity for students to share things with the instructor that they would not reveal in the group setting.

Bob Schwindt (Farmland) mentioned that procedures for special needs students should include techniques for handling bright students as well as slow ones.

Discussion Topic 4: Topics for videotape presentations. The committee felt that the topics planned in the project would be appropriate and volunteers to write scripts for these presentations are as follows:

1. Techniques for educationally handicapped students - David Adams
2. Techniques for physically handicapped students - Gerald Evans/Gay Groves
3. Techniques for learning handicapped students - Elnora Komar

Discussion Topic 8: Review of script for "Procedures for Implementing a Competency-Based Program." The script was reviewed by the members and only editorial changes suggested.

The meeting was dismissed at approximately 4:30 p.m. Monday and the group met for dinner at the Old Missouri Homestead at 6 p.m.

The meeting re-convened Tuesday morning with breakfast at Ramada Inn.

Discussion Topic 1: Development of pre-test for advanced placement of students in the welding program. Members felt the students should take a

written and performance test. They felt the test items could be pulled from the pre-tests to the modules being used in the project.

Discussion Topic 2: Review of instructor and student evaluations of welding modules. Evaluations were collected and later tallied by the project secretary. Results are attached. Assignments were made for evaluation of the modules which have not yet been used and these assignments are attached.

Discussion Topic 3: Problems encountered. The only problem experienced was that the modules were too lengthy for special needs and some secondary students. Charles Briggs presented written suggestions for improvement of the modules.

Discussion Topic 4: Development of supplemental learning activities and instructional techniques. Assignments were made and these assignments are attached. The Project Director will issue contracts to each instructor for development of the activities.

The meeting adjourned at approximately 11 a.m. and members toured the SFCC-SFAVTS welding laboratory. The next meeting was tentatively scheduled for June 16 and 17 in Sedalia.

Prepared by Shirley Evans

attachments--Evaluation Assignments
Teaching Techniques Assignments
Tally of Modules Evaluation

WELDING MODULES TO BE FIELD TESTED
IN PROJECT SCHOOLS

		Evaluation of Modules	Preparation of Teaching Techniques
W79-101	General Welding Shop Safety	Briggs	Briggs
W76-102	Shielded Metal Arc Welding Safety	Briggs	Briggs
W77-103	Fuel Gas Welding Safety	Briggs	Briggs
W77-104	Introduction to the Process of Metal Arc Welding	Briggs	Welch
W77-105	Setting Up and Operating the Metal Arc Welding Machine	Briggs	Welch
W77-106	Basic Joints Used in Welding	Briggs	Welch
W77-107	Shielded Metal Arc Electrodes	McCord	McCord
W77-108	Basic Weave Patterns and Padding	Adams	McCord
W77-109	Square Groove Butt and Lap Joint Shielded Metal Arc Welding	Klepfel	McCord
W77-110	Welding Heavy Plate	Evans	Evans
W78-111	Single and Multiple Pass Fillet Welds	Welch	Evans
W79-112	Metal Arc Welding in the Horizontal Position	Adams	Crist
W78-113	Vertical Position Shielded Arc Welding	McCord	Crist
W79-114	Overhead Position Metal Arc Welding	Klepfel	Crist
W79-120	The Basics of Mig Welding	McCord	Klepfel
W79-121	Setting the Mig Welding Machine and Welding in the Flat Position	Welch	Klepfel
W78-130	The Basics of Tig Welding	Briggs	Evans
W78-131	Setting the Tig Welding Machine and Welding Basic Joints	Adams	Adams
W78-150	Orthographic Projection, Visualization, and Dimension of Weldment Prints	Adams	Adams
W78-151	Basic Symbols Used in Welding	Adams	Adams

A G E N D A

COMPETENCY-BASED WELDING PROJECT
State Fair Community College
Media Forum
June 30, 1980

8:30 a.m. WELCOME & ANNOUNCEMENTS — Shirley Evans

COLLECTION OF ASSIGNMENTS

* Student Progress Records
* Student Evaluation Forms
* Instructor Evaluation Forms
* Supplemental Learning Activities
* Instructional Techniques for Special Needs Students

SHOWING AND EVALUATION OF PRESENTATIONS

* Competency-Based Education: Procedures for Implementing a Program
  Writer: Bob Schwindt
  Media Specialist: Rick List
* Welding and the Learning Disabled Student
  Writer: David Adams
  Media Specialist: Gary Tipton
* Welding and the Educationally Disadvantaged Student
  Writer: Elnora Komar
  Media Specialist: Gary Tipton
* Welding and the Physically Handicapped Student
  Writers: Gay Groves and Gerald Evans
  Media Specialist: Gary Tipton

11:45 a.m. LUNCH
Around the Fireside

1:00 p.m. REVIEW OF FORMAT AND OUTLINES FOR

* Teacher Guide
* Handbook

DISSEMINATION OF PRODUCTS

PROJECT RECOMMENDATIONS

N O T E S

COMPETENCY-BASED WELDING PROJECT
ADVISORY COMMITTEE MEETING

June 30, 1980

Advisory committee members present were: David Adams, Charles Briggs, Charles McCord, Gerald Evans, Jarold Welch, Gay Groves, Rhonda Fairs, Bob Schwindt, Kay Dameron, Bob Robinson, and Dick Omer. Shirley Evans, Rick List, and Gary Tipton of the Media Center staff were also present.

Members invited who were absent included: Mike Klepfel (left his job in March and moved to another state), Charles Crest, and Elnora Komar.

Shirley Evans opened the meeting and reviewed the agenda. Assignments were collected from the instructors present. Some assignments are yet to be mailed to the Media Center.

The videotape presentations developed for the project were viewed by the group and evaluated both in writing and by open discussion following each showing. No revision will be required on these presentations. They will be listed in the Media Center catalog and disseminated on a cost-recovery basis.

The second competency-based slide-tape presentation was viewed by the group. The following revisions were recommended:

1. Revise the beginning phase of the program to make it move faster and to remove the background sounds of an office environment.
2. Correct spelling of oxyacetylene on kodalith.
3. Re-take a few live shots to eliminate the instructor shop coat which displays an FFA emblem.

Following revision, this presentation will be listed in the Media Center catalog and disseminated on a cost-recovery basis.

Each of the instructors present expressed a desire to have copies of the slide-tape and videotape presentations developed in their school. So far as project funds allow, copies will be provided to the schools without charge.

The Handbook for use by instructors and counselors in placing students in the welding program was distributed and reviewed by the committee. Numerous suggestions for improvement of the draft copy were made and these will be incorporated into the final copy.

The only recommendation for change in the instructional modules which had been used during the year was to reduce the content by about 50 percent on each module.

The instructors present asked for replacement of the student learning guides and tests for the 1980-81 school year. The Project Director said that the Media Center would provide the copies requested.

Charles McCord--40 copies
David Adams--45 copies
Charles Briggs--80 copies

Copies of the student record sheet was also requested and will be provided.

The Project staff expressed appreciation for the contributions of the committee members during the year and the meeting adjourned at 1 p.m.

Prepared by Shirley Evans

VIII. ATTACHMENTS

The items listed are separate attachments to this report.

A. Slide-Tape Presentations

1. Competency-Based Instruction - Is it for You.
2. Competency-Based Education: Procedures for Implementing a Program

B. Videotape Presentation

1. Alternate Ways of Teaching Learning Disabled Students in Welding
2. Teaching the Educationally Disadvantaged Student in the Welding Program
3. Teaching the Physically Handicapped in the Welding Programs

C. Handbook for Instructors and Counselors

D. Instructor Guide